

## C. Y. F. R. U. COURSE.

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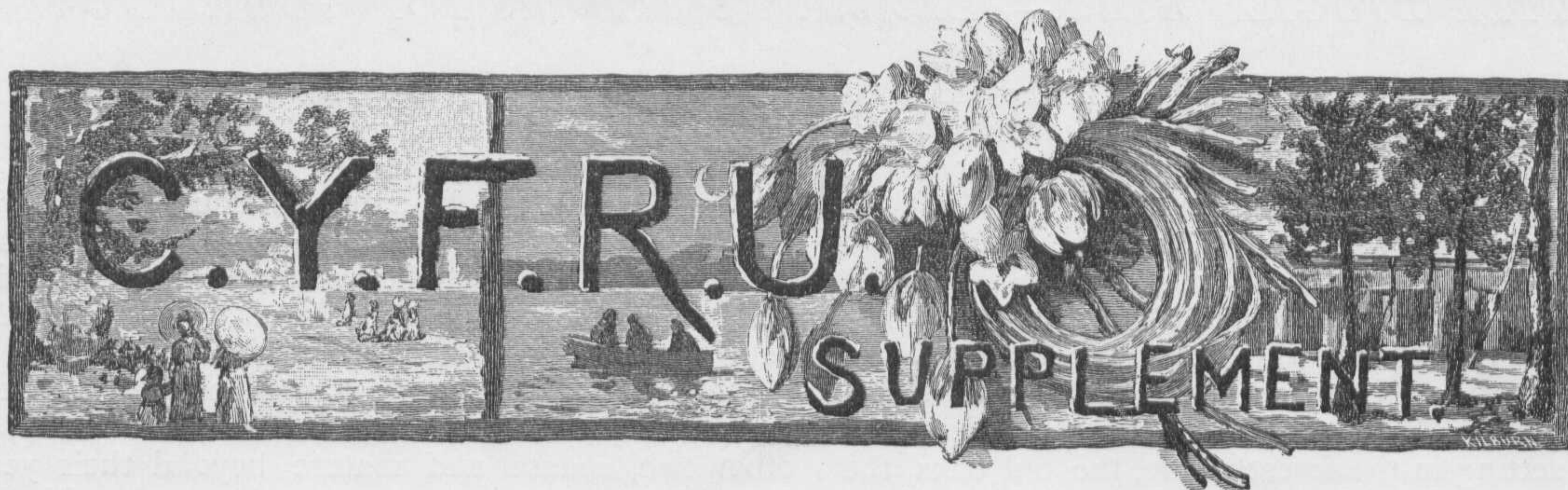


# WIDE AWAKE.



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## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### I.

SIR WALTER SCOTT.

ONCE in a while I take up one of the Waverley novels, and with a remembrance of those long summer afternoons and those long winter evenings when I read them for the first time, I turn the leaves and catch the familiar names; and then I think that some day I will read them all again. But the full delight of that early reading cannot come back. There can be only one *first* time. Happy young girl or boy who has them all before you! I envy you.

When I first knew of those fascinating books, the list stood complete just as it does now, for Walter Scott was dead, and there would be nothing more from the "great magician's" pen. A catalogue from some publisher had come to our house, and I, a child, used to take it in my hand and read the column of titles till I could repeat them all. I wondered if the books would ever be within my reach; I remember distinctly of thinking that they never would. It was like the "good times" of Mrs. Whitney's story and the poor little girl "not in them."

There is something in a name that kindles a child's imagination; every one of those had magic in it; but more to me than any others were *The Heart of Mid-Lothian*, *The Bride of Lammermoor*, *Rob Roy*, *Kenilworth*, *Ivanhoe* and *Guy Mannering*. How I puzzled over the first! Somebody's heart, I was sure; and Mid-Lothian was a part of Scotland; what *could* it mean! The mystery was not solved until ten years later when the whole set in generous volumes fell into my hands, and then I found that that heart was the Tolbooth, or city jail of Edinburgh, and that there the interest of the story culminated.

To read the Waverley novels is to be brought into acquaintance with a great many persons whom one would not miss knowing. They are not always

"gude folk," but there are enough that are good though; and how alive some of them are; the next thing to being flesh and blood. To me Jeanie Deans is as real as my next door neighbor. The sturdy, brave, homely little Scotchwoman—I can see her now setting out, barefoot, carrying her shoes and stockings in her hand to save them—frugal creature that she was—to walk all the way from Edinburgh "up to Lunnon to see the Queen," to get a pardon for poor sister Effie, locked up in the Tolbooth for a crime she was not guilty of.

There is nowhere else in Scott so faithful a picture of the stricter class of Scottish peasantry of former days as of Jeanie and her father, "Douce David Dean," cow-feeder of St. Leonard's Crag. In poetry there is another—I mean Burns' *Cotter's Saturday Night*; and by and by, when we come to George McDonald, we shall find in his *Sir Gibbie* another religious family, but kindlier and more lovable, perhaps the very best in literature.

Then there is Dandy Dinmont, in *Guy Mannering*. That book has weak places: it was written in six weeks, and shows hurried work; and, as in some of the other novels, there are individuals whose personality is so slight that we can hardly remember even their names. But Dandy is strong; he is real; one would like to shake hands with him. I can almost believe that I actually once had that good fortune myself; that I went to Charlie's-hope; and saw the two eldest children, who were allowed to stay in the room because they could behave themselves, "distinctly;" and was told all about the genealogy of the dogs, "auld Pepper and Mustard," and the whole Pepper and Mustard tribe; and in the morning heard the gude wife say that she hoped I slept well in the sheets that "were washed wi' the fairy well water, and bleached on the bonny white gowans." All boys must like *Guy Mannering*, with Dandy Dinmont in it, and the good, hearty open-air life, the hunting and



the salmon spearing; besides, there is the lad Bert-ram, and his precious old master, the immortal Dominie Sampson and Meg Merrilies, who was from first to last such a leal friend to the boy.

But were I to select for a boy the first of the Waverley novels for him to read, or could he have but one for his own, it should be *Ivanhoe*. That splendid story!—it is dramatic, strong, rich in events such as a boy loves to read about; and for that matter, a girl too. In what a picturesque way it opens—the sun setting in the forest glade, the old oaks, the mossy stones of the druids, the figures of the jester Wamba and Garth the swine-herd. Entering Scott's

story of *Rob Roy* on horseback, "the heath-bell of Cheviot and the blossom of the Border," ready to leap over a five-barred gate, or cry when her pet falcon got a hurt. An alone girl-cousin among "the ourang-outangs," as she called those six boisterous cubs of boys at Osbaldistone Hall; spirited and saucy, but so sincere, with such dignity of character, left to herself without mother or friend.

She is one of Scott's types of maidenhood; Rebecca the Jewess, and Rowena the Saxon, in *Ivanhoe*, are other two, sedate and mature beyond their years. But the two who seem to have been after his own heart, though in as great contrast as Night and Day,



SIR WALTER SCOTT.



world of fiction that way is like being admitted through some grand mediæval gateway, to the sound of trumpets and with pennons flying. The boy who likes *Froissart*, will find a book to his mind in *Ivanhoe*.

Nor should another, glowing with historic pictures, be delayed — *The Talisman*, that tale of the crusaders with Saladin and Cœur de Lion and Philip of France in it, opening with the Red Cross Knight pacing along the sands by the Dead Sea; with just enough of mystery to at once arouse interest. I cannot conceive of a boy or girl who would not be fascinated by it.

For a genuine, healthy-natured, handsome heroine there is Die Vernon, who comes dashing into the

by which poetic names they were sometimes called, were Minna and Brenda Troil in *The Pirate*. Their father said he would rather hear their voices "than the skylark which I once heard in Caithness, or the nightingales that I have read of." It is like being away off in Thule, with the ocean breaking against the rocky headlands before you, and feeling the salty tonic in all your veins, to read *The Pirate*.

What a long procession of kings and courtiers, dames and cavaliers and yeomen, youths and maidens pass along the pages of Walter Scott! They are in those spirited poems which all young people know something about, *Marmion*, *Rokeby*, and the rest:



they are in the true *Tales of a Grandfather*, which made history like a story book for his grandson, "Hugh Little John;" and beyond all, they make the Waverley novels all alive, as the world of to-day which we live in is alive, with men, women and children. Animals, too: there is a barking of dogs in joyous greeting, just as there was at the gates of Abbotsford.

I wish there was space to write about the dogs at Abbotsford, Scott's own beloved pets, his intelligent companions and genuine friends; especially the famous Camp and Maida, and the two noble stag-hounds who sat "so charmingly" for their pictures with him the last time his portrait was taken.

I have sometimes speculated about what it would be that would take the strongest hold on a young person on a first reading of the Waverley novels. I must call attention to the wonderful richness of his way of writing. It is like a piece of tapestry, crowded with figures in landscapes that are all beauty, such as you can gaze at, and study, and return to, finding something new, and never tiring of it. No series of books in the language is so picturesque. They stand quite by themselves; they are the masterpieces of their kind. Scott was the king of story-tellers; and I suppose as a matter of course the story itself, the narrative, would at once make one oblivious of everything else. Thinking about the style comes later; and come it will. Thinking about the characters, too, comes as one grows older. The question will be sure to come up: "How much is true in the Waverley novels?" And there the introduction and notes are, ready with the answer; and one may believe a great deal—that many of the personages were actual portraits, that much of the scenery was real. After that, one would come to the feeling that there is a wholesomeness about them; no cant or morbidity.

Walter Scott's was a wholesome life; his spirit was sunny and sweet; he was poetic and imaginative, but not sentimental; of a robust nature sound to the core. What then but healthfulness and the qualities which make books attractive with attractions of the right sort, should we expect from his writings? Ruskin says, "What good Scott has in him to do, I find no words full enough to tell. His ideal of honor in men and women is inbred, indisputable: fresh as the air of his mountains; firm as their rocks." He says of his sympathy, that "there is no rank or condition of men of which he has not shown the loveliest aspect;" and then he pays a tribute to his "decisions of accurate and inevitable common sense, tempered by the most graceful kindness."

From a child Scott loved the country and grew to it, though city born; in Edinburgh, "mine own romantic town," he says (August 15th, 1771); but becoming unaccountably lame before he had learned to walk, the wise thought came to his father and mother to send him to the old farm-house at Sandy Knowl, which belonged in his grandfather's family; and perhaps to the kind of life he lived there we owe the romances. Could anything have been more inspiring to such a child

than to have been carried out wrapped in a plaid, and laid down among the crags to roll and crawl about there all day long while the shepherd watched his flock, and then the ewe-milkers carrying the sweet bairn about on their shoulders! No wonder that he said when he grew older, "a blue hill to me is a friend, and a roaring torrent like the sound of a domestic song that hath soothed my infancy."

There too the legendary element came into his life. He was in the midst of a region full of poetic and historic associations. He heard traditions, and gathered up all the odds and ends of old ballads, and limped about among the cottages, and sat by the ingle side and listened to the auld wives' stories. He knew all the burns and passes of the hills, the flowers that grew there, the creatures that roamed or swam in those wilds, every haunt of forest bird or water fowl. There was not the making of a city boy in Walter Scott. He grew up strong and muscular, of a powerful frame, and was about six feet tall. Though he always "hirpled," as he said, in his gait, he was equal to any tramp.

He was a born story-teller, and spun romances from his brain to amuse his schoolmates, as easily as a spider spins out of himself. A greedy reader too, with his Shakespeare and Homer, Ossian and Spenser, for earliest books. You see the boy's tastes were for high things. Spenser, he said, he could have read forever, and he was delighted to find himself in such good company as Spenser's people. Just so say we of the people in his own books. Fortunate happening for us, and all who are to come after us, that he hunted for fishing tackle in an old desk one day, and discovered the manuscript of a partly written story which he had long before written and lost.

That was *Waverley*. He was then forty-three years old, and already famous for his poems. He had struck a new vein of precious ore, whose richness must have been a surprise to himself. How rapidly the novels followed one another (in seventeen years he had written twenty-nine) till the last, *Castle Dangerous*, about a year before his death, which was on the 21st of September, 1832.

In the midst of his busiest literary work, he had Abbotsford built, which he was years engaged upon, meant to be kept in his family forever; a stately home on the banks of the Tweed, in the midst of such storied places as the Gildon Hills, the Vale of Ettrick and the braes of Yarrow. The name of that castellated house will never be forgotten. What Scott wrote will never pass out of the world's literature; and with the name Waverley, that of Abbotsford will last, though not a stone be left that went into its structure.

A list of Scott's most interesting works: in poetry, *Minstrelsy of the Scottish Borders*, *Lay of the Last Minstrel*, *Marmion*, *The Lady of the Lake*, *Rokeby*, *The Lord of the Isles*; in prose, *Tales of a Grandfather*, *Waverley Novels*, the titles of which are as follows: *Waverley*, *Guy Mannering*, *The Antiquary*, *The Black Dwarf*, *Old Mortality*, *The Heart of Mid-Lothian*, *The Bride of Lammermoor*, *Legend of Montrose*, *Ivanhoe*, *The Monastery*, *The Abbot*, *Kenilworth*, *The Pirate*, *The Fortunes of Nigel*, *Peveril of the Peak*, *Quentin Durward*, *Saint Ronan's Well*, *Red Gauntlet*, *The Betrothed*, *The Talisman*, *Woodstock*, *Chronicles of Canongate*, *Fair Maid of Perth*, *Anne of Geierstein*, *Count Robert of Paris*, *Castle Dangerous*.



## THROUGH A MICROSCOPE.

BY SAMUEL WELLS.

AN object one hundredth of an inch in diameter, or of which it would take one hundred placed side by side to make an inch, is about the smallest thing that can be easily seen by the unassisted eye. Take a piece of card and punch a little hole through it with the point of a

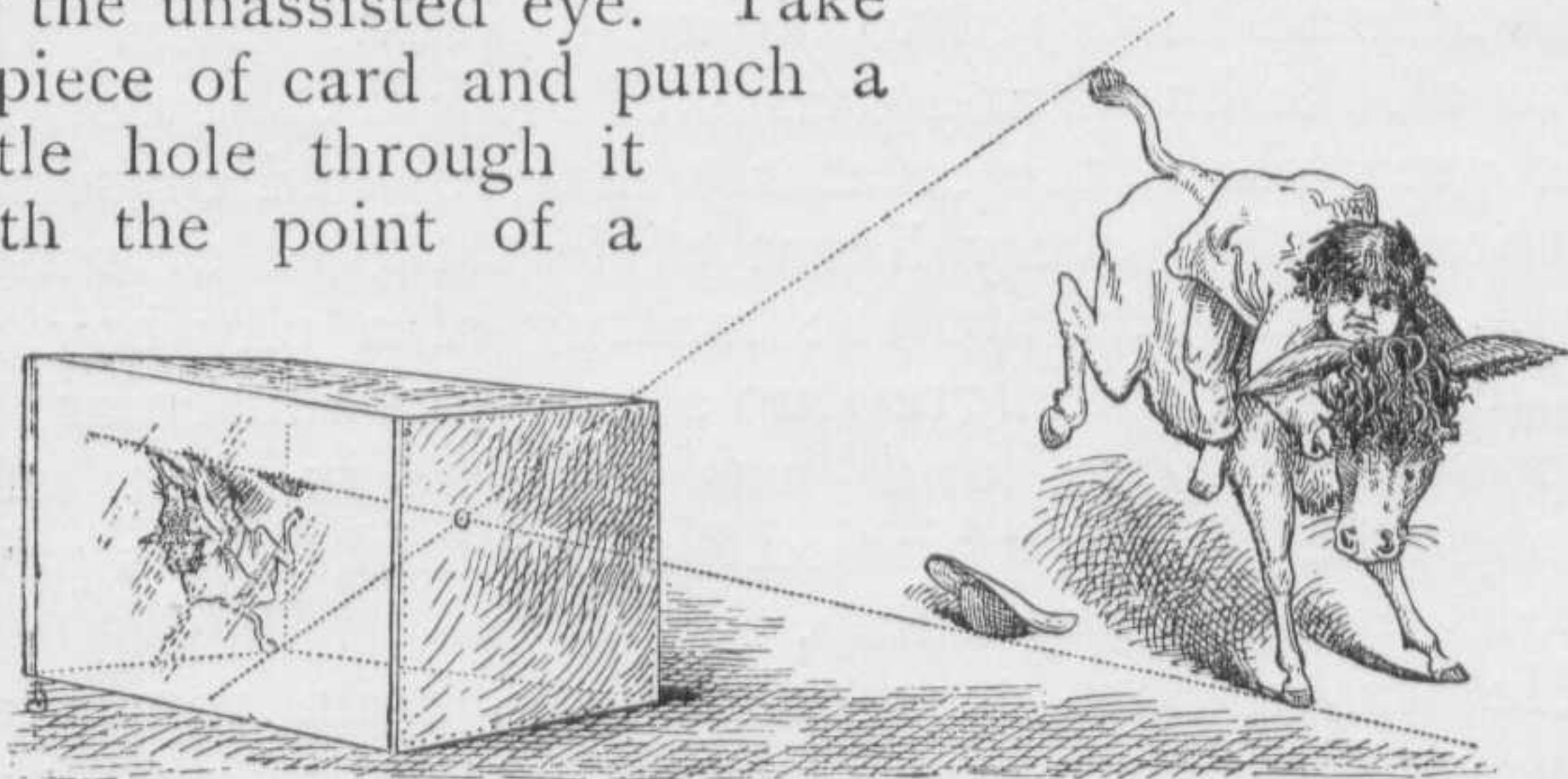


FIG. 1.

small needle, hold it towards a lamp or a window, and you will see the light through it.

This hole will be about the size just mentioned, and you will find that you can see it best and most distinctly when you hold it at a certain distance from your eye; and this distance will not be far from ten inches, unless you are near-sighted. Now bring it towards your eye and you will find it becomes blurred and indistinct. You will see by this experiment that you cannot see things distinctly when held too close to your eye, or in other words, that you cannot bring your eye nearer to an object than eight or ten inches and see it well at the same time.

You could see things much smaller than one hundredth of an inch if you could get your eye close enough to them. How can that be done? Buy a microscope? yes, but what is that? This name comes from two Greek words that mean "to see small things;" and a microscope is an instrument by which your eye can get very close to what you want to see.

To understand this, take out one of your eyes and look at it with the other one. You see that it is a little round camera; most boys have seen a camera and some boys can make one. The simplest way to do that is to take a box, say a cigar box (empty, of course); pull off the cover and fasten in the place of it a piece of ground glass if you have one: if not a piece of white letter paper, oiled, will do; bore a hole in the middle of the bottom with a small gimlet and your camera is done. Point the bottom with the hole in it out of the window, and throw a piece of cloth over your head and over the box, as the photographers do, to shut out the side light, but mind and not cover up the hole; look at the ground glass (or oiled paper) and you will see things upside down.

(Fig. 1.) But what has it to do with my eye? you say. Why, your eye is just like it, only round, as in fig. 2. And if you hold a doll or anything else about ten inches in front of the eye you have taken out and look at the inside of it (the eye, not the doll) just as you look at the ground glass of your box camera, you will see the doll upside down on the back of the eye.

But how, do you say, can I see things right side up when they are upside down in my eye? This is a very good conundrum and it will keep a long time, till you are about seventy years old and have spare time to sit down and think about it.

Now you see how your eye is a camera; the pupil is the hole and the back of the eye, called the retina, is the ground glass.

But you will find that the camera you have just made does not show things distinctly and beautifully as the photographer's camera does; how can they be distinct in the eye then?

Because in the photographer's camera, in the hole is a lens, which is a piece of glass, shaped like a sun glass; and so in your eye just behind the pupil is a lens, not made of glass, but still almost as transparent as if it were. In order to see what effect this lens has, take your box camera, make the hole larger and put a lens in it; one of your magic lantern lenses will do; and if the lens has the right focus you will see the images sharp and distinct on your ground glass. The focus probably will not be just right, so make a paper tube, into which fasten your lens and slide the tube in and out of the hole until you find the right focus.

When you have got that right, so that you see a boy on the sidewalk upside down and see his teeth when he laughs, put some small object, the little doll will do, about three feet in front of your lens, and you will find the image of it is blurred and indistinct, and that you must pull your tube out to get the focus on the

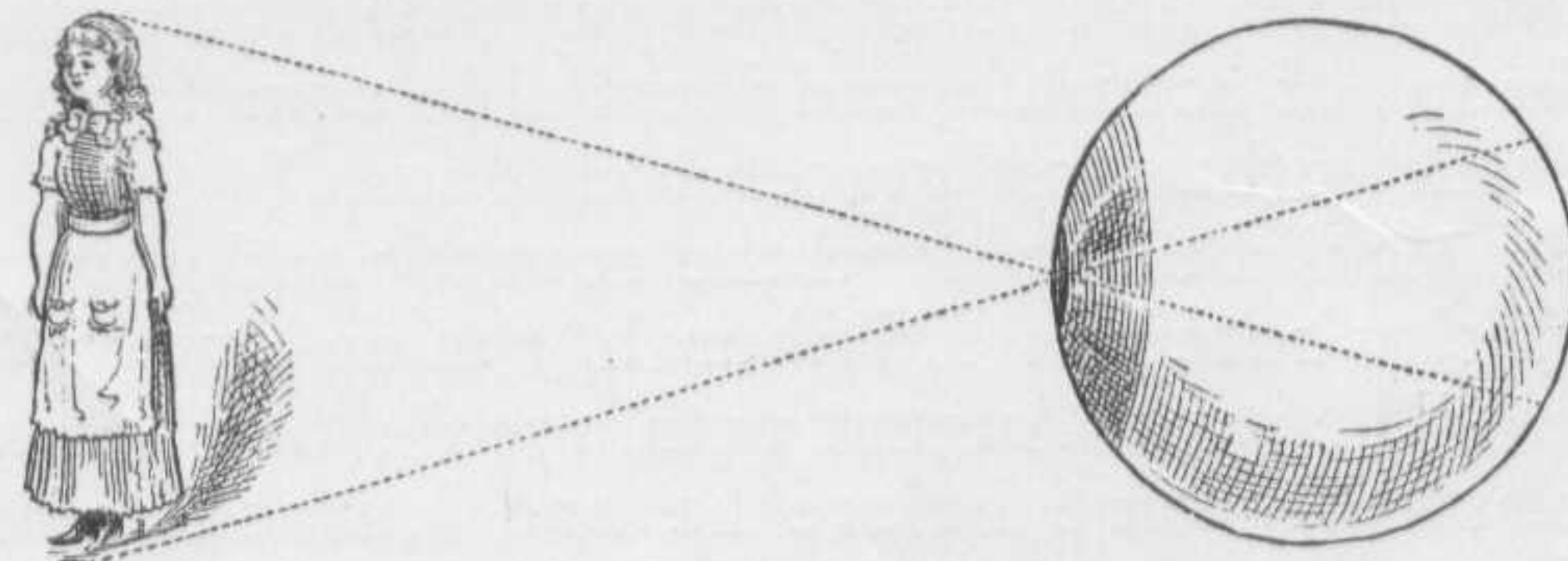


FIG. 2.

doll; or if you had another lens of just the right shape to hold in front of your camera, you would with that get the focus on the doll.



Thus you can see how it is with your eye, and why you cannot see things distinctly held close to it. The lens in the eye can change its shape a little, so that it will focus objects a mile off, or ten inches off, but it cannot be pushed in and out like the tube in your camera. You can do this, however, if you take another lens and hold it outside your eye and let the light go through that first before it comes to the lens in your eye, and in this way you can get a focus in your retina, and the outside lens thus forms a part of that optical instrument called your eye. Does your grandma know that her spectacles are a part of the cameras that she calls her eyes?

How is it that a lens bends (refracts is the big word for it) the rays of light? You will learn by and by. You can see that it does so by a few experiments with your sun glass or any such lens. Hold it between the sun and a piece of white paper until the white spot in the centre is as small as you can make it. You will see that the rest of the lens casts a shadow although it is all glass; this is because the rays of sunlight that fall on the lens are all bent towards the centre, and so you have a small white spot on which is concentrated the light and the heat, and before you have found out how it is all done, your paper takes fire and the experiment ends in smoke.

Take another piece of paper, and when the white spot is at its smallest, measure the distance between the lens and the paper, and you will have the focal distance of the lens.

You have now found out how to get your eye close to an object and see something that is very small; this is usually called magnifying it, because it seems to

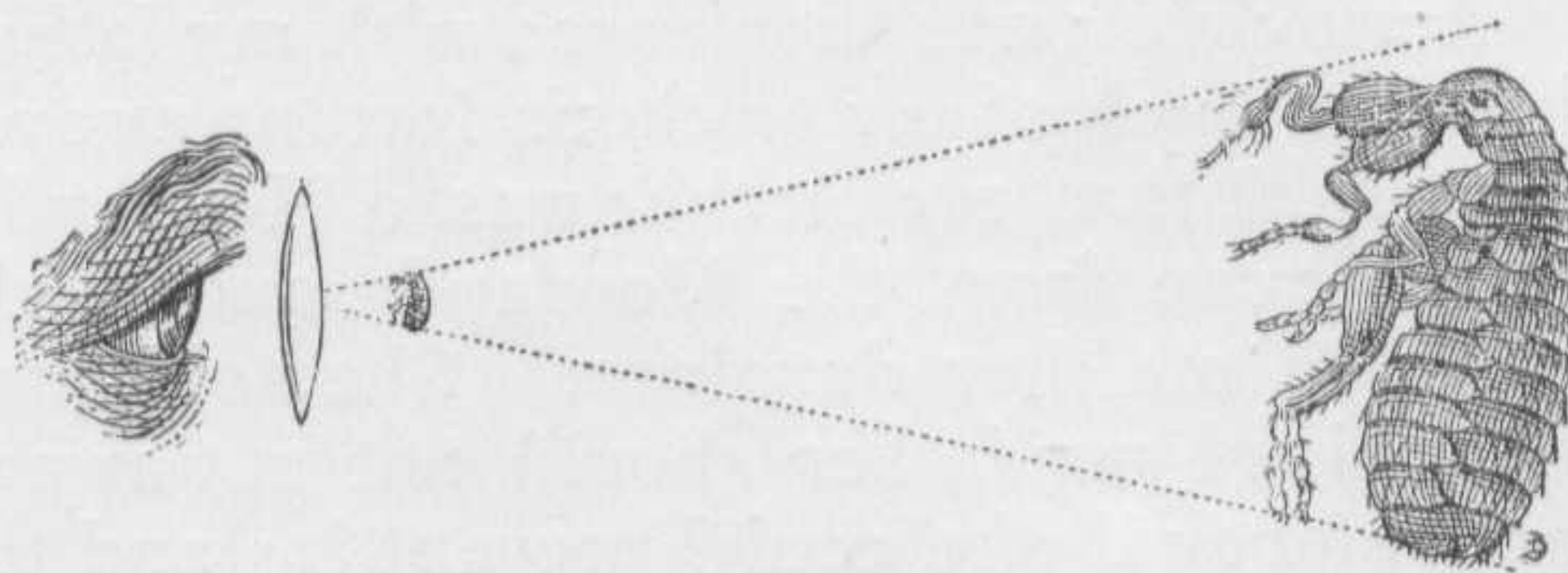


FIG. 3.

make it look large. Suppose you have a lens that will let you see a flea through it held just one inch from it, this lens is now an addition to your eye, as we measure from the lens. If you had another flea held ten inches off, so big that it would just be hidden by the little flea, the one farthest off would be ten times as large as the near one. (Fig. 3.) In this case it is said that the lens having a focal length of one inch magnifies ten times, or has a power of ten.

The shortest usual distance of objects seen distinctly being taken as ten inches, microscopists have agreed to consider that as the standard of measurement, and objects seen through a lens are considered magnified to the size they would have if projected ten inches off, like our little flea, whose habits we will now imitate and skip away and hide for a month.

## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

### I.

#### AUNT SYLVIA'S WILL: FORGERY.

THERE was once a lady named Sylvia Howland, who was growing old without having been married, but was very rich. She took her niece, named Hetty, to live with her as an adopted daughter. This niece had inherited from her mother, who was dead, a little property, but it was not much; her father had obtained almost all the mother's property, and by means of it and his success in business had become even richer than the aunt. In course of time aunt Sylvia made a will giving her money to her niece. She gave this will to her niece to keep; and when a few years later the aunt died, the niece expected that the property would come to her. But it was then found that aunt Sylvia had made a later will, giving the property quite differently.

A will is a paper saying how property shall be given after the owner's death. Most persons wish to use what they own as long as they live; they cannot therefore give it away during lifetime. The law allows writing down one's "will"; that is, one's *wish* as to what shall be done with the property one leaves, and the property must be given to the persons named in the will. If one makes several wills, the one made last is the one to be obeyed. Thus when aunt Sylvia's second will was found, every one said: "Oh, the old lady changed her mind towards the last, and thought she would not give her whole fortune to her niece." And ordinarily any one has a right to change his mind and make a later will, and this overthrows all that were earlier made.

But suppose a person has made a solemn contract not to change the will first made? Suppose aunt Sylvia, for example, made a bargain with niece Hetty that the niece should have her money when she died;



ought she to change her mind secretly, and make a new will without telling Hetty of it? Certainly not.

Niece Hetty declared that she and aunt Sylvia had made such a bargain. Her story was somewhat like this: "Aunt Sylvia was displeased with my father for his taking so much of my mother's fortune away from me. She said that my mother was a Howland, and her money came from the Howlands, and ought to have gone to me, her daughter. She told me she was determined my father should not get any more Howland money if she could prevent it; and that if I would make a will giving whatever I should leave when I died to people satisfactory to her, she would make her will leaving her money to me. Her motive was to make sure that my father would not inherit her money or mine. I did make just such a will as she wished. She dictated her will to me, and I wrote it on a slate, and copied it on sheets of paper. Then she signed it. She gave me her will to keep, and I gave her mine. And we each promised the other not to change our wills."

The people who would have aunt Sylvia's money under the second will, said: "All that is only your story; you have nothing to show to prove it."

"Yes, I have," said niece Hetty; "aunt Sylvia dictated another paper, which I copied for her and she signed, telling the whole matter."

And sure enough there were found two copies of a paper called the "second page" of the will, in niece Hetty's handwriting, but signed with aunt Sylvia's name, declaring very solemnly that the first will should never be changed. But those who wished the second will to be established would not believe that aunt Sylvia ever signed this "second page." They accused niece Hetty of having "forged" aunt Sylvia's name; that is, of having written the name herself, imitating the aunt's handwriting.

Forgery is imitating a person's signature, or making a fictitious document in order to obtain property. This is a grave crime, and severely punished whenever detected. And it can nearly always be detected. Almost all business is managed, property sold or money paid, by means of little written papers to which people sign their names. Young and inexperienced persons when they see business men dashing off their signatures to checks, notes, receipts and orders, are apt to imagine it very easy and safe to imitate a man's signature, and by that means get some of his property. A small boy who entered a lawyer's office as messenger, but had never been taught anything about forgery, saw the lawyer sign checks and send them to the bank, where the money was always paid; and he supposed he could get money for himself in that way. So one day he signed the lawyer's name to a check for ten dollars and presented it at the bank. As the cashier was good natured and saw that the boy was ignorant, he only laughed at him, tore up the check, and told the lawyer that he had better teach his errand boy something about forgery. If he had been a stern man, or had thought that the boy

understood what he was doing, he would have sent him to prison. Business men, especially clerks in banks, acquire great skill in knowing signatures and detecting imitations or forgeries. For no two natural handwritings are precisely alike. Almost every person has a peculiar way of making some letters. Besides this there is what is called a general character of each hand which distinguishes it from others. Even when one person imitates another's signature and does so very skilfully, there will be some minute differences. Ordinary people may be deceived, but those who are trained in the scientific ways of detecting forgeries can almost always distinguish a genuine signature from an imitated one.

Accordingly there was a long trial to ascertain whether aunt Sylvia really signed the "second page" of her will, or niece Hetty forged her name. For certain reasons the trial stopped before this was learned. But it is very certain that if there was an attempt at forgery it did not succeed. The trial shows that forgery is exceedingly difficult and dangerous.

Not only is there a difference between two persons' handwritings, but any one person scarcely ever signs his name twice precisely alike. You can try the experiment by writing your name on each of two not very thick pieces of paper, and then laying one over the other against a window pane. See whether one signature will exactly fit the other. The persons who accused niece Hetty of forging aunt Sylvia's name said that she had done it by "tracing it;" that is, by putting the genuine signature of the will against the window and laying the other paper over, so that she could see the name through it, and then tracing letters on the second paper to correspond precisely with those underneath. If she did so her plan was ingenious, but it made the false signature too much like the real one. A learned professor testified that he had calculated the matter mathematically, and that there was only one chance among two thousand six hundred and sixty-six millions of millions of millions that aunt Sylvia could have written her name three times as precisely alike as it appeared upon the will and the two copies of the "second page."

The microscope is of great use in detecting forgeries. If the forger sketches the name first with a pencil, and writes with ink over the pencil, as is often done to make the imitation more perfect, the microscope will reveal the lead-pencil marks; or, if the forger has rubbed these out, the microscope will reveal traces of the rubbing.

A sea-captain once hired a chronometer for use on his voyage and signed a printed receipt for it; but his ship was wrecked and he never brought the chronometer back. The chronometer man brought a law suit, for he claimed that the sea-captain had promised to pay for it if it should be lost. He produced his receipt, and, behold, it contained two lines written in a blank space above the captain's signature, making just such a promise. The sea-captain swore that



these lines were not written when he signed the receipt, and declared that they must have been forged afterward. But the lawyer for the chronometer man said: "Look at the writing under a microscope." This was done, and showed that the top of a letter in the sea-captain's name ran up into the bottom of a letter in the written promise, and that the inks of the two letters had mingled while they were fresh, forming a sort of puddle. In other words, the sea-captain had signed his name while the ink of the promise to pay for the chronometer was still wet.

Another way of using the microscope is to magnify two writings upon large screens, and take photographs of the images appearing on the screens. When these photographs are compared, all the minute peculiarities of each handwriting can be very plainly seen.

Some skilful persons say that every one's hand trembles a very little while he is writing, and that no two hands tremble precisely alike. This trembling—nerve-tremor, it is called—can be seen by the microscope in the letters; thus if one should see that the aunt's name signed underneath a paper in the niece's handwriting showed the same nerve-tremor with what was written by the niece, he would declare that the niece wrote the name.

Forgeries are detected by various accidental circumstances. A cadet at West Point was once accused of forging a letter which was written on a half sheet of note paper; and when his desk was searched the other half of the same sheet was found among his stationery. His accusers considered this strong proof. Suppose a will dated 1870 were written on paper having a peculiar watermark, and the manufacturer of the paper were to say that he did not begin making the paper with that mark until 1878; it would be natural to think that the will was forged. Some persons who were plotting to forge a deed

thought it would be shrewd to put a sixpence under the wax seal, and did so; and when they testified about the signing and sealing, they said that the deed they saw signed had a sixpence put under the seal. They thought the lawyers would break the wax, and when they found a sixpence there would believe all the rest of the story. The wax was broken, and the sixpence found. But the lawyer who was against the deed said, "Examine the date of the sixpence!" And, behold the sixpence was dated several years later than the deed. This proved the forgery.

Forgers are often detected by little mistakes they make, especially mistakes in spelling. If a teacher knew that a boy in his school was wont to misspell *money* thus, "munney," and if this boy should one day bring what seemed to be a letter from his father to the teacher, asking the teacher to give the boy some "munney" for Christmas, would not the teacher suspect that the pupil had written the letter himself and signed his father's name? Well, this actually happens in law suits.

A person named Alexander learned that a man of the same name had died leaving property but no heirs. He thought he would present himself as heir and claim the estate. He forged a parcel of family letters describing himself as heir. But the lawyer against him observed that several words were misspelled alike in all the letters. When the case was tried the lawyer asked that Alexander write something from the judge's dictation, and he gave to be dictated a paragraph containing these same words. The unlucky forger misspelled them all in the same way. Then they showed him what he had done, and accused him plumply of having forged the letters; and he at length confessed. Thus it is almost impossible to make fictitious papers or signatures without incurring disgrace and punishment.

## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

### I.

#### THE SHOP ITSELF.

**I**F there is anything a boy really likes to have, it is a workshop of his own.

But then it must be really his own; a place where he can pound and hammer, saw and whittle, and make all the litter and noise he wants to, without having to clear up things.

A boy likes a place where he can leave a thing half finished and be sure of finding it again. He wants a key to the door, so that he can lock up his treasures and know he shall find them safe the next spare hour he gets to work at some pet notion.

Housemaids, and sometimes even mothers, don't see the difference between unfinished work and rubbish, and off into the kindlings goes something that has cost a boy a lot of thought and work. No wonder a fellow who isn't a saint, but only a human boy, gets



out of patience and wishes emphatically that "folks would just let his things alone!"

So I say, let every boy have his own workshop and a key to it.

Where shall the workshop be?

I don't think it makes much difference. There must be plenty of light, of course, and the room must not be damp. My first workshop was in the attic, with a skylight. I liked it first-rate; but it was a bother to bring the lumber up-stairs, and then, too, the shavings and chips had to be carried down. I got along with it capitally though for three years; but I like my down-stairs shop better. The noise of pounding and sawing never disturbs any one either, if it is below. One end of the woodshed can be partitioned off for a shop if there is no room in the house.

Now you've got your workshop, the next thing is, "what shall go into it?"

There are two ways to fit up a workshop. The easiest and the quickest is also the most expensive: *i. e.* get your father to tell the carpenter to fit it up, and then buy a tool chest. The objections are: the expense and the doubtful quality of the tools in a ready-filled tool chest; then, to my thinking, you lose a lot of fun yourself. It is a good lesson in carpentry to make your own work bench and tool chest, and the money you save that way can go into better tools.

Every boy ought to remember this, a *cheap* tool is probably a *dear* tool. The very best is really the cheapest in the end, and you can't do good work with poor tools.

Of course the boys I am talking to are not in the infant class. A boy who has never fooled round with tools, who has never cared enough about carpentry to try his hand at tinkering up broken chairs and boxes, the boy who hasn't got past mashing his fingers when he drives a nail, and doesn't know the difference between cutting with a saw and whittling with a knife, isn't the boy to care whether he has a workshop or not.

But I should like to help the boys who have had "toy tool chests," and have used them enough to find out "they are no good," and are really ambitious to do neat, serviceable work, and to know enough about the right use of good tools to be ready and able to do the hundred little odd jobs that come up in a house and can often be as well done by a boy carpenter as by a regular workman. I know one boy who in one year, doing odd jobs himself, saved the full cost of his outfit.

When I began I couldn't find anybody to tell me the things I wanted to know. I had to find them out for myself, and that is just what I am going to try and tell you. So we start with this understanding. You are in earnest; you wish to do good, substantial work; you haven't a great deal of money to spend,

and you are willing to let patience and labor make up for the lack of money, knowing, too, that the lessons you will get making your work bench and tool chest will be worth considerable.

If your mother can spare you an old bureau, or an old-fashioned washstand with a lid and a cupboard, it will be handy in one corner of the workshop, not only to hold your tools till the chest is made, but to keep all sorts of odds and ends in by and by.

You ought to have a stout pair of overalls, or a workman's apron made of ticking, with a good pocket. I have both, and find them handy. If it's a little job, I slip on the apron; if a long one it pays to get into the overalls. Your clothes keep clean, and there's nothing to do when the dinner bell rings but to slip off the working uniform and wash your hands. Carpentry is cleaner work than printing. I know, for I have tried both.

Now for the list of essential tools. If it sounds large and expensive, you must remember that once bought they will last for years, and are your capital, your stock in trade. From time to time you will add to them. If you live in Boston or the vicinity, I should advise you to go to Goodnow and Wightman's, 176, or to Wilkinson's, 184, Washington street, or some other first-rate establishment, and get what you want. On an order like this there would be quite a discount.

The prices vary from time to time, so those in the list are given simply that you may have a general idea of the cost.

I will say here that it will pay you to have two or three practical lessons in the use of a saw, a plane, and a chisel, from a carpenter. If you are in the city, there are regular classes where you can get such instructions. It will save patience and tools.

Hammer.....	.75 to \$1.00
Saw (crosscut) 16 to 18 inch .....	1.25
" (splitting) " " .....	1.35
Chisel 1 inch socket firmer .....	.60
" 1-2 " " " .....	.25
Bit brace (plain 1.50) ratchet.....	2.00
Bits 3-8, 1-2, 5-8.....	.80
Small bits 1-4 and less for screws, the set.....	.50
Screw-driver { at Wilkinson's ask for a gunmaker's { { and machinist's drop forged }	.40
Hatchet.....	.75
2 ft. rule.....	.25
Try square (9 inch).....	1.00
Oil stone (1 1-2 or 2 inches wide).....	.40
Mallet (large wooden).....	.35
Small iron Block Plane (Bailey's).....	1.25
Jack or Fore Plane, Stanley's 20 inch.....	2.25
Draw Knife 7 inch.....	.70
\$15.10	

Nails and screws of various sizes can be got at any hardware store. If you send an order through the village store, be sure to send to first-class establishments, and procure the following makes:

Planes, *Bailey's* or *Stanley's*, iron and wood; chisels and gouges, *Buck* or *Moulson*; braces, *Barber*; saws, *Henry Diston*; rules and squares, *Stanley*; files, *Stubs*, *Greaves and Sons*.



## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

## I.

## HOW TO MAKE HOUSEWORK EASIER.

ANNA MARIA said the other day she would like to know if there really was any way of making housekeeping easier, short of shirking it altogether. If there was any improvement to it, she thought people couldn't know it any too soon. She read all the plans for making work lighter, but to get at them you must build a new apartment-house, with steam heat and pneumatic tubes to send groceries home and shoot the dinner up from the great central bake-house and kitchen, which was to be somewhere in the same square. She wondered if the meals wouldn't get cold on the way, and how you'd ever make cake light if you had to send it six or eight doors off before you could pop it in the oven. She wasn't just at liberty to join coöperative schemes, and if she was she didn't know how somebody else's way of housekeeping would suit hers. She distinctly belonged to the common sort, who don't keep a man and a maid, who do everything "menial" for themselves, who don't drink tea from Japanese teacups, or eat dessert on painted china, who use red and white tablecloths for breakfast and lunch, and glass goblets at a dollar a dozen, but who like nice order and dainty housekeeping as well as people who have lace tea-cloths and cloissonné or Minton ware. She never even belonged to a "family" to speak of—her grandfather wasn't a judge nor a bishop, nor even a wholesale grocer; she thought it was a very great neglect on the part of her father and mother not to provide their children with distinguished ancestors and heirloom china and silver coffeepots—but it couldn't be helped. They had only been hard-working, honest, respectable folks, who lived in a rented house and had baked beans every Sunday and salt-fish twice a week. That was *their* standard of elegance. All the same Anna Maria thought she enjoyed reading Longfellow and Miss Caroline Fox's journal, and making rose-crochet toilet sets, and planting rose-cuttings and carnations in the clematis border, possibly not as well as if she came of an old family, but just as well as she could, being herself. She didn't know how she could be happier than she was, if only the housework didn't take up so much time from reading and rose-planting and rose-knitting. She and her mother couldn't do like the ladies in stories, who lived alone in a cottage or in lodgings, and went around dusting things with the tips of their fingers; who breakfasted on an egg and slip of toast, and

washed the china on the mahogany table, and left everything else to the convenient charwoman who comes in every day to do all the rest of the work. It must be rather expensive, if she charged a dollar and a half a day, like Mrs. Mulvany who went out to day's work in their neighborhood. Anna Maria always had a woman to wash and scrub, but that woman was herself. She didn't mind the work, but she hated taking so much time paring potatoes and making cookies, and cleaning out the sink and clearing the table three times a day, when there were so many pleasant things to be done in the world. And she hated having her hands red and rough, so that they caught the silk of her embroidery, and shamed the white pages of her diary when she wrote in it.

Anna Maria is our neighbor's daughter, a nice girl with shrewd, sensible ways, who goes to the High School, and stands well in the Latin class, and is specially good, her teacher says, in Political Economy and Rhetoric. She helps her mother, does much of the sewing, and had the finest cinerarias and cyclamen a-bloom in her windows this February of anybody in town. As Darius Perkins says, *all* her sense don't run to seed in books. She knows plenty about things, as well as other people's ideas about them.

Anna Maria is rather a favorite with me, and I wish we could find some way to help her. She doesn't want a hired girl—the last one they had turned up her nose because the family hadn't a velvet carpet or a plated silver tea-set, and weren't, as she phrased it, "highly connected." When she left it took Anna Maria and her mother a straight week of housecleaning to get things in order, the closets sweet and the paint bright, and they never will get the grease-spot out of the wall where she hung the hams against the wall-paper. Anna Maria says the whole house smelled of hired girl while she was in it, and you could not open the front door without a draft of beans or onions, fried cakes or burnt something rushing at you. Between the two crosses she would rather endure the work than the help, but *need* it take all one's time just to feed and clean and feed again? That is what she would like to know.

Dear Anna Maria, it need not. There are hosts of helps nowadays—help that don't have unpleasant habits, that don't sing "Pinafore" and the "Sweet By and By" at the top of their voice from cellar to roof-tree, or smell of burnt fat, or wipe the bread knife on their aprons. If you spent about a quarter of what a girl's wages would amount to for a year in *these* helps, you would find, I think, that cooking and



cleaning needn't take all your time. When a carpenter wants to do good work, and fast work, he looks out to have the best tools in the best order, and the first thing you want is to have your tools, good, bad or indifferent, in the best order they will allow. The greatest help I know of in housekeeping is a sharp knife. It saves time paring vegetables and cutting meat or bread. So Anna Maria wants to get her father to sharpen the carving knife and the kitchen knife and the little paring knife, and she wants an oil-stone to keep them sharp. A kitchen grindstone which sits on a table and turns in a japanned iron trough is a very great help, and it only costs a dollar and lasts a generation.

Then, Anna Maria, you want a very solid meat-block on three legs, that will stand pounding, hacking and sawing, on which you can trim your joints of meat, crack bones for soup, chop hash—or no; for that you want a small sausage grinder. No dishes are nicer than those of meat or vegetables divided very finely, for the flavor spreads, and the fibre cooks better, and the food is easier of digestion than in solid form.

Broad saucepans and frying pans are best for cooking quickly. To fry potatoes or hominy or cakes for breakfast with a common "spider," or skillet, is miserably slow compared with the way you can turn them off from the broad griddle, which gives every slice a chance to brown. Use a cake turner for lifting everything that is fried, if you want to save time, and take them up in neat, whole slices instead of slovenly flakes.

You need not burn your face over the kitchen stove if you only use a long, wooden-handled fork, such as the shops have for ten cents, and a long spoon for cooking. Let me tell you one thing; when you have baking and work over the stove, rubbing the face with sweet oil, glycerine, or vaseline, is very good to prevent that dryness and harshness of the skin which ruins faces early. You need not make your face to shine with it like a Central African, but rub a little into the skin after washing it and drying well, and wipe off all that shows on the cheeks.

I know that sifting the coal ashes and blacking the stove are Anna Maria's greatest dread; they are so disagreeable. Her people are talking of buying a new range, and I hope that they will have one of those which screen the cinders before taking out the ashes. There are two or three screens in use which will sift ashes without as much dust as you would make sweeping the kitchen, and they cost a dollar each. A quarter of another week's wages of a first-class hired girl gone for that, and the life long dread of cinder sifting banished, and a quarter of the coal saved in a year. For the stove, nothing is better than the Brunswick black, the dull but beautiful finish of the best Berlin iron, used for fine grates. It is a varnish kept by dealers in high-class fire fittings, and costs fifty cents a quart, which will blacken all the grates and stoves in the house, only it won't do

for sheet iron. When that is rusty rub it with a file or sand, and polish with common stove blacking mixed with turpentine varnish. Use this only when the stove is cold and the fire out, or the turpentine may blaze and burn you. Rub the moldings of your stoves with the Berlin black, and polish the top of the cook stove, as fast as it burns red, with the Magic blacking, which needs no hard rubbing to make it bright.

Now for the dishwashing, in which you want to save time and save your hands too. I have washed dishes so often without wetting my hands till it was time to wring out the towels that I'm sure Anna Maria can do it too with practice. Dishes well scraped and piled at the left of the dish pan, the wooden drainer at the right, next the broad shelf under the slide window into the china closet, and there is no time lost going backward and forward with things. You save time in housekeeping by seconds and half minutes, but by the day's end they count in hours. If you can't wash the dishes immediately, cover them with water, wash and wipe the silver which will get dull by standing, and leave the rest till convenient. Plenty of hot water and soap, plenty of clean towels, and the little white dishmop, make washing dishes rather easy, pleasant work. But the tin pans and the stove ware! How to save time and tribulation, listen to what I tell you. As soon as anything is cooked, empty kettle or pan, and pour in cold water at once, before a crust has time to form. When you find the hours of scraping and scouring saved by this simple care, you will be out of patience with careless folks who neglect it, to say nothing of keeping the tin boilers and saucepans in good order by this plan. Wash kettles and cooking ware with the steel dishcloth, of flexible rings, linked together, which do the work of twenty scrapers, only you must fasten a wooden handle to it to keep your hands out of the hot water and the soda or lye you must use to keep the utensils nice. Rinse them all—I rinse my cooking things whether I do my plates or not, to keep them from any possibility of giving the taste of one day's cooking to the next. Then wipe tin and iron with coarse towels kept for them, to save your hands from wringing the dishcloth over and over. To save time, scald your tinware and dry it in the open oven or in the hot sun, turning it upside down to drain.

If you want to know how much is saved by these little things, just time yourself by the clock and find how long it takes to do up the work mornings, how long to wash the dishes, how many minutes to sweep, how many to clean and polish stove, faucets, and any little brightening and scouring which always comes to hand. Then see how long you are sweeping and putting the sitting-room in order, and doing the chamber work. Nothing stimulates and guides work like timing it by the clock. You will find as other girls have found before you, that the kitchen work which may last two hours can be briskly and com-



fortably done in three quarters of one hour, and that chambers and sitting-room can be made perfectly neat in half an hour. Of course this provides for a way of doing work very different from that of the æsthetic damsels in stories who wave a feather duster daintily and gingerly over the parlor ornaments for their forenoon's work. I've seen a young woman packing her trunk for a journey who was just thirty-five minutes folding and rolling up six pairs of red cotton stockings. I had the curiosity to glance at the time while she was about it. This was her usual gait and manner of doing things, very precise, very ladylike, never hurried, and intolerably slow. I hope when you pride yourselves on your ideal ladyhood, it won't include being so elegantly slow. There is too much to do, to enjoy, to learn in life not to get the fullest of our privileges, and the most of our time. You will find that you gain in a week's practise, by looking at the clock every ten minutes. It is the same kind of a check on dawdling or wasting moments that keeping an account is upon spending money. The waste stares you in the face, and shames or grieves you into doing better.

Learn all the swift ways chemistry provides for doing your work. If you want bright tin and brass and steel, as of course you do, you need not spend hours in scouring them. A ten-cent can of potash, and a sixpenny cake of sapolio, pride of the kitchen, or mineral soap, which are white and pleasant to use, will do the work for you. Dissolve a teaspoonful of potash in a gallon of boiling water in an iron kettle; in this lye boiling hot dip all rusty articles for an instant or two till the spots look bright, then rinse at once, wash, and wipe dry. If a kettle or saucepan is burnt inside, pour in a cup of this lye, and scald till the crust comes off. Have you a rusty or greasy old jar to cleanse—wash it first, then fill with hot lye and let it stand half a day. Keep a jar or firkin of lye beside the sink, for you will want it for all sorts of things—taking rust from brass, iron and tin, cleaning pails, taking grease out of floors and shelves. The lye may be used for rinsing things over and over. A spoonful in dishwater, a cupful in water to scrub with, is very cleansing, only you must not let a drop fall on your clothes, for it will stain and burn, and you must use it with a swab, and not let it get on your hands, or they will be ruined with cracks and sores. Always rinse your hands in vinegar and water after using it. If you are careful in its use lye is the greatest help in cleaning, and does away with all greasy, disagreeable and bad smelling work. A spoonful in a basin of warm water will clean old,

grimy paint, and leave it looking bright as new. It must be rinsed off quickly and wiped dry, and it should not be used on varnished furniture or oiled wood.

You want to make that smoky teakettle bright and nice enough to complete your kitchen picture when it sings for tea, and you don't want to scrub an hour over it. Make a strong hot suds with lye in it, dip the kettle in and wash the smoke off with a swab or brush, rinse it, drain dry, and clean with whiting and kerosene, or fine sapolio, applied with one large flannel, and polish with dry whiting and a fresh cloth. It is easier than decalcomanie, and then you keep your kettle bright by rubbing it every day with coarse paper.

For all this cleaning of silver, brass and tin, you wear gloves to keep your hands from growing into paws, stiff, rough and unmanageable. If you can't get old kid gloves enough, cotton flannel gloves or mittens are good, made up the soft side in, and the seams outside opened and felled down. They should have long wrists to button over the dress-sleeve, and ought to be washed every day after getting through work.

I hope you never wear anything but wash dresses about housework. It cannot be nice to wear cashmere, flannel, or cloth for work, even if they are old dresses, for woolens catch dust and lint, and hold grease and smells of cooking and of suds in a dreadful way, no matter how careful the wearer. A clean sixpenny print is far more ladylike for kitchen or sweeping work than a second-best flannel or serge, and it should be easy-fitting, large in the armholes, and without lining unless it is a double gown lined with print. An unlined print, without overskirt or trimming except a gathered flounce, is washed and ironed almost as easily as a bib apron, and can be made of six to eight yards of calico. Nor need it look like a housemaid's dress either. A fresh dark print, domestic gingham in small brown or blue check, an indigo or china blue percale with small white dots, are any of them very pretty made as an English gown, gathered in a belt at the waist, the skirt rather scant, but fullness added by a small flounce at the feet, the sleeves gathered on the shoulder and tapered in leg-of-mutton fashion to the wrist, or gathered in a band like the old bishop sleeves which are worn again. The white collar and little brooch or bow of ribbon at the throat, the stout apron of crash, ready to take all traces of rough work, the smart slippers and red or blue stockings are picturesque enough to suit the fancy of any girl who has taste as well as fancy.



## HEALTH AND STRENGTH PAPERS.

BY PROFESSOR D. A. SARGENT.

## I.

## STRONG BOYS.

WHAT boy has not felt his heart grow big with a nobler ambition, while reading the exploits of some youthful hero? How we long to be in his place, to rescue the weak, to punish the wicked, and to do and to dare.

Even his temptations, his trials and his hardships seem to attract us, for we cannot help thinking that his cool head and courageous strength will take him through all difficulties.

When at the end of the story our hero overcomes all obstacles, and stands forth crowned with honor and success, our admiration knows no bounds. In our mind's-eye we see a tall, broad-shouldered, deep-chested lad—for so the author has painted him—with head erect, a modest air, and calm expression of conscious power.

From that moment we strive to be like him; we feel that we have grown an inch in height; our feet take firmer hold of the ground, our shoulders are thrown back, and our lungs are more fully inflated.

The air we breathe seems to inspire us with new life, our muscles and sinews are nerved for action, and we long for an opportunity to show the world the "stuff" we are made of.

Who, I say, has not felt the influence of Hughes', Elijah Kellogg's, and Fenimore Cooper's boy heroes?

But did you ever hear or read of one that was pale and sickly, whose body was weak and puny, and in whose limbs was no strength and vigor?

Wouldn't such a hero have made you blush for his pretensions? Yes, my lads, the heroes that you and I have read about, can run faster, jump further, and strike harder than any of their companions. Indeed, it is the ability to surpass others in every effort at well doing that makes a hero.

We care not how trivial the boy's goal may be, compared with that for which men strive. If in order to win we must first learn to know and master ourselves, to restrain our appetites and govern our passions, if we are required to put forth our strength in oft-repeated, well-sustained endeavors, the power gained from practice is ours, and in later years we can apply it to nobler and grander purposes.

But some of you may say the youthful heroes we read about are not real, they are made up in the minds of the authors, and only live in fiction. Tell us of some strong boys that we know about, some that really lived on earth and grew to be men of note.

Well, my lads, history is filled with them, and not a few great athletic feats and physical exploits are credited to boys who afterward became famous men.

To begin with the ancients: "Chrysippus and Cleanthes, the famous philosophers, were victorious athletes." "The profound and eloquent Plato appeared among the wrestlers in the Isthmian and Pythian games." The meditative Pythagoras and his pupil Eurymones gained athletic prizes at Ellis."

"Goethe took a wild delight in all sorts of physical exercises." He was a great swimmer, an expert skater, and a good rider. Walter Scott though lame was a strong and healthy boy; "he could spear a salmon with the best fisher on the Tweed, and ride a wild horse with any hunter in Yarrow." He was sturdy as a ploughman, long winded as a pedestrian, and brave and daring as the heroes he has immortalized in his novels and poems. Who shall say that the wonderful endurance he afterward displayed in his literary pursuits was not the outcome of his physical training in boyhood?

Wordsworth, too, was a great pedestrian even in his youth. He rambled through woods, climbed mountains, and waded streams unaccompanied. In later years he accustomed himself to think and write while walking in his garden. His vivid descriptions of nature may be largely attributed to the secrets he learned from her during his long tramps and summer rambles.

Byron, though lame like Scott, was a good boxer and a great swimmer. His feat of swimming the Hellespont (a distance of two thousand one hundred and thirty yards) through rapid currents and whirling eddies, has rarely been surpassed.

Professor Wilson (Christopher North) was great at throwing the hammer; and in youth Robert Burns distinguished himself especially in leaping, wrestling, and putting the shot.

Isaac Barrow and Andrew Fuller, the great English divines, were chiefly famous while at school for their skill in boxing.

Adam Clarke, another great divine, was noted when a boy for the remarkable strength displayed in lifting heavy weights.

Washington was a great athlete. His horsemanship is familiar to every American boy, and he is said to have made a running leap of twenty-three feet. Considering that the best athletes of the present day, after all their preparatory training, seldom equal this, the effort credited to Washington is remarkable.



Abraham Lincoln was a giant in strength, and quite an athlete in his way.

So was the late President Garfield.

It is true that many of the world's great workers were feeble boys and sickly men. Among them was Aristotle of old, Pascal, Milton, Johnson, Pope, Lord Nelson, Channing, Robert Hall, and Alexander Stevens of the present day. Some have weakened a good constitution and lessened their physical and mental powers, by over-work, imprudence in eating and drinking, and for want of exercise and sleep. Others, though originally weak, have been able by constant care to accumulate strength, to do a world of work, and live to a ripe old age.

But these are exceptions which prove the rule. Say what we will, vigorous boys usually make strong and healthy men, and healthy men are the ones who go to the front in every pursuit to bear the burden of the fight, shape opinion, and mould the destinies of the world.

Who shall say that the physical hardihood of a Hannibal, Napoleon, Grant, Sheridan and Sherman had nothing to do with their military success?

Think of Lyndhurst electrifying the House of Lords by a brilliant speech when he was ninety! Think of Lord Palmerston as a premier at eighty, of Brougham, Campbell, Peel, Bright and Gladstone at the post of duty when far advanced in years. All broad-shouldered, deep-chested, vigorous old men!

Did the tough and wiry frame of Clay and Calhoun, and the massive physique of Webster, play no part in their oratorical efforts?

Has the rugged health of Blaine, Cameron, Conkling and Thurlow Weed had no weight in sustaining them through the heat and turmoil of their political career?

Look at the acknowledged leaders of the pulpit to-day: Spurgeon, Beecher, Brooks, Hall, Taylor, Collyer and others. In health, strength, physical development and capacity for work, they tower away above the masses. But why enumerate? Hunt up the life history of the leading men at the bar, in manufacturing, and financiering—look over the biographies of all the literary and political celebrities of this country, of Great Britain, France and Germany, and you will find that they have been for the most part men who have looked after their physical condition and maintained their health.

There are many ways of doing this, and the same way will not do for all. Previous training, circumstances in life, and many things which occur to modify and control the actions of *men*, must be taken into account. But as *boys* the coast is clear. You boys are not burdened with business cares, or made to twist your bodies out of shape in conforming to your occupation. Play time is yours. How to make the best of it we shall learn in the next chapter.

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## WAYS TO DO THINGS.

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BY MARGARET LAKE.

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### XII. — MAKING SCRAP-BOOKS.

WHAT THE "PROFESSOR OF PASTING" HAS DONE.

NO amusement comes more natural to a child, and there is nothing that will keep him out of mischief longer, than pasting something. Give him a pot of paste, and a pair of scissors, and an illustrated newspaper, and a box or a book or a piece of board, and he is as happy as a king.

And young folks have the "scrap book mania," which lasts for a while, just as the "postage stamp mania," and so many others do; and then, perhaps, there is an end to it.

But there oughtn't to be an end. You can go on making scrap-books all your life, with a vast deal of profit to yourself and to other people. Some of the best poems that are written float around in the newspapers as anonymous fugitives; and the finest ones of

the best authors, like Longfellow and Whittier, are copied in newspapers from one end of the country to the other. Many facts, incidents, bits out of current biographies and histories, but worth knowing and preserving, are put before the great reading public in the same way. And when any eminent person dies there is always a careful sketch of his life. Now, not everybody can own volumes of poems, or have all the books he wants, or all the magazines; but any one can secure a great deal in this way—and it is often the cream too—and have it right on hand and ready to turn to; a library in small space, compact and rich as the meat in a nut.

To show you just what can be done, I will tell you what one young lady has been doing, and her whole mode of operation. She has worked so much among scraps, in odd minutes, filling in the chinks of time, as she says—not interfering with her regular studies and work—that her intimate friends call her



"Professor of Pasting." She began by saving scraps and pictures. No torn piece of newspaper could go into the waste basket without her looking it over. Of course she had certain purposes in mind. At first they had reference only to her own personal pleasure and benefit, but pretty soon she saw ways in which even scrap-books might become of value. So the undertaking grew and grew on her hands, until she already has a whole shelf full of these omniverous volumes.

There is only one handsome, nice "boughten scrap-book" among them, and this is filled with choice selected poetry; and it has for years been the resource of the girl graduates and boy declaimers of the neighborhood, who are always coming with the question, "Haven't you something that is pretty for me to recite or speak on Wednesday afternoon?" There is another (the out-of-date "cash-book" of a storekeeper) into which have been gathered enigmas, charades, puzzles, games and bright things saved up in that shape for the amusement of the young folks who come to the house; and it is such an inexhaustible treasury that a fortnight of winter evenings or rainy days in vacation could not use up the novelty. There is another where only receipts for cooking have a place. This is full and brimming over with the directions of Marian Harland and Miss Beecher and Miss Parloa and all the rest; and our young lady says that one of these days she is going to carefully try these for herself, and prove what are the best, and so become just as good a cook as she possibly can. And she has a companion volume in prospect, in which are to be preserved such useful scraps as will tell her how to do things in emergencies, such as when some one is burned or scalded, or spills ink on the carpet; or when iron rust and berry stains are on the table napkins; how to keep the brass andirons bright; how to wash her laces; and nicely "do up" cuffs and collars, and so on.

The chief part of this scrap-book library is comprehended in five large volumes, which all happen to be of a size, and all in marbled paper covers of the same pattern. They are the old account-books of a grocery firm, which the owners were only too glad to give her on condition that all the writing on the pages should be covered up. They are quite a pretty set of tomes since she has freshened them up a little; and they furnish one snug corner of the room in a substantial way. Of the number, one is devoted to animals (including birds, insects, etc.) and flowers (which means also plants in general, trees, gardening, etc.). It opens with animals; the flower part begins at the middle of the book. The best animal stories are there, anecdotes about their habits, and every thing. And if you wish to know how to cultivate pansies, how to make hyacinths bloom, what kind of soil is good for English ivies, how to raise celery, etc., etc., there you have it. To that book everybody goes for information about cultivating lettuce and asparagus, and all such matters. If a question comes up, "perhaps the animal and flower book will tell."

Two are miscellaneous prose, and the others are historical and biographical; sketches, incidents, extracts from books, about individuals or important transactions—the class of things that persons are always wishing to refer to. They are of much value, and are constantly in use. They are handy, reliable, and so arranged that one can turn to the exact thing in a minute. To make them so readily accessible, the owner carefully prepared an alphabetical index, with numbers to correspond to the scraps, each of which is numbered at the left hand corner at the top. In two of the books these numbers run up to about five hundred. The plan works in this way: suppose in your composition, or for some purpose, you wish to look up certain facts about Abraham Lincoln, you would turn to the legible nice index, and find against his name certain numbers, say, 15, 102, 144, 300, 495, 496, 498.

A word about the workmanship. A page accommodates three newspaper columns, having one broad outer, and one inner margin. The scraps are neatly trimmed, and kept to a true perpendicular, fitting close at the sides, but having a half inch space at the top of each to leave a blank for the number. So you see that, though they are only old account books, they answer every purpose. A leaf was cut out here and there as she went along, that the volume might not become bulgy; and if there was any writing which the clippings did not cover, it was removed with an eraser, or a strip of paper was neatly pasted over it.

Besides these, our "Professor of Pasting" has under way three collections for which some future historian or biographer will bless her memory. She has three piles of unbound matter, preserved on sheets of common brown Manila paper, folded in about the size of a school atlas. One of these receives every scrap cut from newspapers about the town in which she lives; auction sales, deaths, marriages, administrators' notices, anecdotes, personals, anything. The others are filled with items concerning any person of her father's or mother's family name. Say the names are Tomkins and Smart. The future Tomkins genealogist, and the Smart one, will find that these items will save him much uncertain groping amid musty town records or archives of the church. You know that it is one of the useful literary fashions of the present day to write town histories and books of genealogy. With that thought in mind, the young lady will eventually deposit her collections with the Historical Society of her State for preservation. She has already had her painstaking employment complimented, by being entrusted with the preparation of two valuable volumes of scrap collections belonging to the Society, which she arranged in the neatest manner.

Our "Professor of Pasting" is following in the footsteps of such workers as Charles Sumner, who thought every newspaper clipping on a matter he was interested in was worth saving. And I could tell you of a tea-chest full of scraps gathered during a period of forty years, by a very busy man, and laid by



against the time when he could begin writing an important series of biographies; and how he still seizes eagerly every item he can put his hands on, to preserve it for the unknown man who is to continue the work when he is no more; and how this accumulating mass would have become a burden, had not our "P. P." above named gone to the rescue, and added to her record by actually pasting four immense volumes of "Collections" for him!

One thing more; a girl can do herself and others good service by making a scrap-book of directions for crocheting and knitting and making pretty things.

What lovely results! And how "nice" to know where to find just what somebody wants to know! A "Patent Office Report" makes an excellent book for this purpose.

Another time I will speak of picture books.

But I must not forget that in a certain ancient house I saw lying on the table in the sitting-room a huge tome in leathern covers, entitled "The Family Scrap-book," in which each member put whatever was of special interest to him or her. And the daughter told me that there was a great deal of the family life in it. It had become very precious.

## RUNAWAY PETS.

BY FELIX L. OSWALD.

"We played at hide and seek, till we  
Forever lost each other."

WHEN good friends fall out they are harder to reconcile than strangers who have had an accidental quarrel, and perhaps for a similar reason truant pets often become shyer than wild animals. In countries where hunters use gunpowder and trained dogs, such large game as deer have but little chance of reaching their full age; yet in the Belgian Ardennes a runaway pony once managed to baffle his pursuers for more than seven years. The people had given up all hope of catching him alive, but they found that they could not shoot him, either; he was too wary for their best hunters. He changed his haunts nearly every day, and experience had taught him to avoid danger in all its forms; even the approach of a strayed cow made him uneasy for fear that the owner might follow her. Beaten roads he crossed only in night-time or during a fog, and then as quickly as possible; but high up on the ridges of the rocky highlands berry-pickers had sometimes watched him unobserved, and seen him stand motionless on a projecting cliff, looking around and listening for hours, before he ventured to descend upon the lower pastures. Still-hunters, who had followed his tracks for days, had now and then succeeded in getting near enough to see him gallop away through the tanglewood, but on such occasions they had always wasted their powder, and the mountaineers actually began to believe that he must be bullet-proof, when the wary outlaw was at last outwitted by a poacher who tracked him into the lonely pine forests of the Sambre highlands, where he had taken his winter quarters in a wooded ravine.

It had been ascertained that he had run away

from the stables of a little watering-place, where he had not been treated worse than other horses, but his first owner was a kind old lady who rode him to church on Sunday and let him graze for the rest of the week in a shady little pasture of his own; and it is probable that he could not forgive his new master for failing to grant him the same privileges.

Freeborn animals often desert upon even slighter provocations. The soldiers of Fort Concho, in Texas, had a pet antelope that gave them the slip because the cook had chased her out of the officers' kitchen-garden. She escaped to the prairie, where her red collar made her conspicuous among a troop of her wild relatives, and it seemed really as if she was taking a delight in provoking her former masters: she would trot ahead of the herd and come near enough to hear the barking of the dogs or see the men come out with horses and guns, and then dash off with a swiftness that defied all pursuit. Nay, she appeared to have ascertained the target-range of a United States rifle, for the report of a shot did not scare her a bit as long as the marksman kept a certain distance and the open prairie secured her a free retreat.

But a still shyer deserter was Bobtail Ben, an East Indian Rhesus monkey, who had followed my brother over land and sea, and finally escaped from a country-house near the Mexican town of Jalapa. Nobody knew what made him leave, though suspicion pointed to the Mexican cook, who in a fit of anger had once attempted to kill a dog with a meat-axe, and might have made a similar attack upon the mischievous East Indian. The cook maintained that he had deserted from a sheer want of principles; but however that might be, the runaway had no idea of joining the long-tailed natives of the Mexican forests. He preferred fruit-pies to sour figs, and continued on



visiting terms with his former protectors, but only on certain unalterable conditions of his own. The owner of the house was a Mexican doctor whose children used to eat their supper in the garden, and one evening, about a week after Benny's elopement,

two of the girls had just returned from a stroll to the spring, when to their surprise they saw Master Bobtail standing upon the table, helping himself to the remains of their meal.

(TO BE CONTINUED.)

## WHAT TO DO ABOUT IT.

JESSIE B. C. doesn't like oatmeal, and her mother wishes directions for making the steamed oatmeal spoken of in the Health articles of *WIDE AWAKE*. Put eight heaping tablespoonfuls of oatmeal to soak over night in one quart of filtered water; next morning set it in a tin boiler over the fire till it boils, then place in a double boiler or kettle half full of boiling water, to finish cooking. Add one heaping teaspoonful of salt while cooking, and keep it boiling twenty minutes at least. Sprinkle cinnamon and sugar over it, or eat with beefsteak as a vegetable. When cold, slice thick and fry on a very hot griddle, with as much butter or suet as for batter-cakes. The "steamed oatmeal" and "steamed wheat" are preparations sold after steaming and drying, but the W. B. does not recommend them.

2. Were the articles called "My Daughter and I," by Mrs. Helen Tracy Myers, ever published in book form? They were not.

NETTA D. J. Was the story in May *WIDE AWAKE*, "Lost in Pompeii," true? I was very much interested in it. You may write to the author, care U. S. Training Ship *Portsmouth*, Newport, R. I., and he may tell you some other marvelous things about this same adventure.

CHARLES E. H., Jr. 1. Did Washington sign the Declaration of Independence? No. He was elected member of the House of Burgesses, in Virginia, but not of the Federal Congress at Philadelphia, which made the declaration, and was absent with the troops at the time it was signed.

2. Where can I find a good history of the Emperor Maximilian? Which Maximilian do you mean? There have been three distinguished sovereigns of the name, one in the fifteenth and one in the sixteenth century, as well as the modern one we all know. Taking it for granted you mean Maximilian of Mexico, you will find a German history by Hellwald, called Maximilian I., Kaiser von Mexico, published at Vienna in 1869; and an English history in Kendall's Mexico under Maximilian, published in London, 1872. A very good sketch of this gallant emperor will be found in the *People's Cyclopedia*, edited by Dr. Du Puy, of New York.

3. Who first discovered gas and its uses? Gas, from natural sources, has been used in China for centuries, but the first persons to bring the manufact-

ured gas into general use were Wm. Murdock, of Cornwall, in 1792, and M. Le Bon, of France, about the same date.

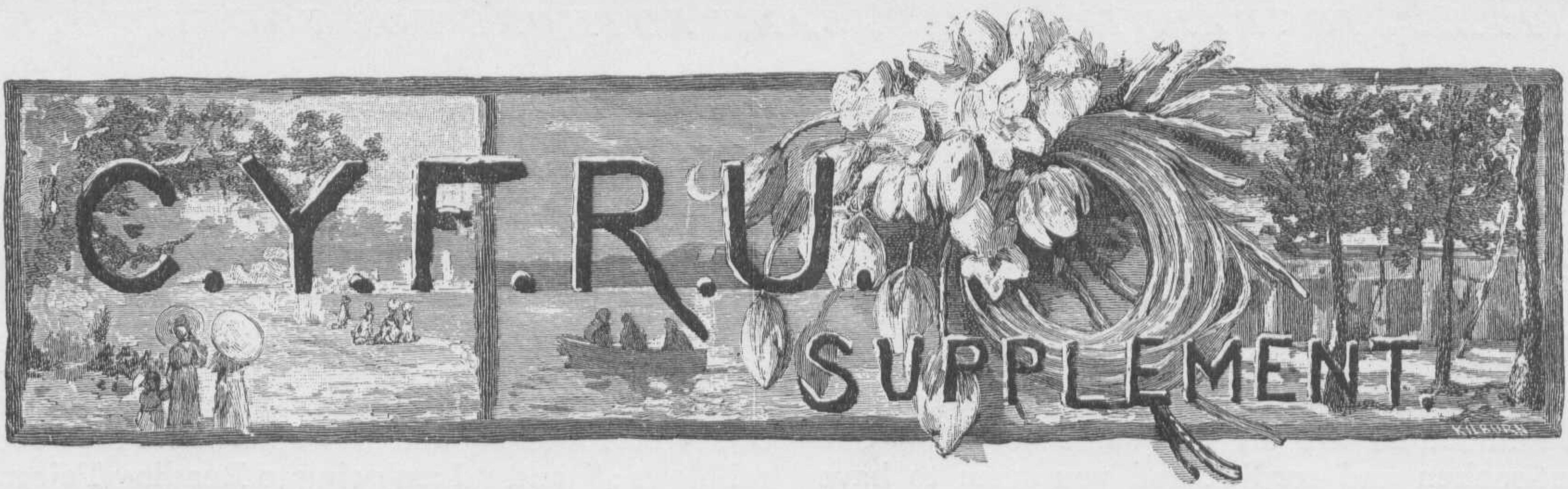
MRS. J. F. A. My little son wishes to know why Island No. 10 was so called in the War of the Rebellion. The islands of the Mississippi were numbered as the readiest way of naming them, from the junction of the Ohio down, long before the war.

Daisy asks for "a piece to read or recite in school for a gold medal — a good piece, pathetic, humorous and effective, if well read before a mixed assembly." Once for all, the Blackbird must decline to undertake the task of finding selections for public readings, in total ignorance of the age or abilities of the person applying. What would answer for one would be useless in the hands of another, and readings both humorous and pathetic are so rare that I hope whoever knows a few selections which answer the description will not fail to mention them in the *WIDE AWAKE* Post Office. The Blackbird does not think highly of competitive readings as exercises in school, as they tend more to give a style of dramatic display than refined expression of tone and manner. The best test of reading is to choose a passage not in itself highly effective, and give it the interest conveyed by a flexible and sympathetic voice, pure enunciation, and just but delicate emphasis.

MIGNONETTE. "You say that ancient Roman women wore amber and crystal necklaces to keep their necks cool. They also had amber balls to hold in their hands, and they were very fond of these balls, as amber when heated gives out a very sweet perfume. Beside these balls of amber, generally when a Roman woman went out she wound a pet snake around the wrist and neck. I have been to a very interesting course of lectures which were given here in New York about Romans and their different costumes. I am very much interested about Roman ladies, and so I wrote to tell you about the snakes." If friends of the *WIDE AWAKE* will send such notes of information from their reading and hearing, it will add much to the value of these later pages of the magazine. It will be safer to say that the Roman patricians sometimes carried a pet snake for coolness, as the practice was far from a common one.

THE WISE BLACKBIRD.





## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### II.

MARY RUSSELL MITFORD.

MANY years ago some Americans who were travelling in England, took a post-chaise, after the old-fashioned way, and had a morning drive to pay their respects to an old-fashioned woman who was living in poverty with her one servant in a cottage not far from the town of Reading. That word "cottage" must have a little explanation, for with us it is so often made to mean a quite capacious house, almost a mansion, or a villa on a moderate plan. This cottage was far enough from being ample; it was small and poor; to be plain, the rooms in it were not much bigger than closets, and were close and stuffy, and in heavy rains the roof leaked. As the mistress of it once wrote about it to a friend, it was a tight "squeeze;" and she added, "Indeed my great objection to a small room always was its extreme unbecomingness to one of my enormity. I really seem to fill it—like a blackbird in a goldfinch's cage. The parlor looks all me. Nevertheless, 'the cabin is convenient,' as I said before. Its negative merits are very great."

She had managed to make it—as some women can make the poorest place—a "very nest of comfort;" and this is the cheery way she describes it in one of those sketches of hers which so many thousands of persons have read:

"A cottage—no—a miniature house, with many additions, little odds and ends of places, pantries, and what not; all angles, and of a charming in-and-outness; a little brick court before one half, and a little flower-yard before the other; the walls, old and weather stained, covered with hollyhocks, roses, honeysuckles, and a great apricot-tree; the casements full of geraniums: (ah, there is our superb white cat peeping out from among them!) the closets (our landlord has the assurance to call them rooms) full of contrivances and corner-cupboards; and the little garden behind full of common flowers, tulips,

pinks, larkspurs, peonies, stocks and carnations, with an arbor of privet not unlike a sentry-box, where one lives in a delicious green light, and looks out on the gayest of all gay flower-beds. That house was built on purpose to show in what an exceedingly small compass comfort may be packed."

And that description shows the poetic side, and what a happy faculty she had, like Gudbrand's wife, of making the best of everything. It does not look as if the place was poor, but it was; though very picturesque with that old shed and granary overrun like all the rest with untrimmed and untrained things—as pretty a subject as an artist could desire.

The American visitors found her that morning in the bit of front yard which kept her house from shutting right on the turnpike road. She was walking along a passage between two rows of geraniums as tall as she was, snipping off the decaying leaves with a pair of shears. She wore a cap, and a snowy white muslin handkerchief was pinned across the bosom of her cheap black gown; and on her plump hands she had mitts such as our grandmothers used to wear (and they have come into fashion again), where the fingers were all free while the thumb had a little compartment by itself; it seems to me that they were of thick black crape with rows of white feather stitch down the back, and they did look so quaint, like the antiquated gentlewoman who wore them. She was short and stout; a "dumpling of a person;" with a face as round and good-natured as Phebe Cary's; and as she slowly walked and snipped, she was chirping like a canary to a silky-haired spaniel who kept close by her gown, and an old house cat on the window-ledge. Her voice was sweet: her manners were charming.

That was one of the houses in *Our Village*. Into its least of gardens, which was its "one luxury," and into the little closet of a parlor, walled with books, choice men and women from both sides the ocean—royal guests, she would have called them—were always proud of a welcome. It was as great an



honor as it was a treat to go to Three-Mile Cross, and see the genial face of Mary Russell Mitford and talk with her; or better, hear her talk.

Some writers are so like their books that if you know one you know the other. When you know *Our Village* you know Miss Mitford; and when to this acquaintance you have supplemented her letters, you will have as intimate a knowledge of her as could be possible without personal intercourse. Books and letters are all the same herself. She was out-spoken and cordial, and you seem to have always known her and all about her.

You will know rural England too, just what it is

this cowslip-tide — one has such pleasure in *doddering* along the hedge-rows, gathering wild violets and wood-sorrel, listening to the wood-lark, watching for the nightingale," one shrinks at exchanging it "for smoky, dusty London!" When the family were obliged to give up their handsome place at Bertram House for this "cabin" at Three-Mile Cross, she congratulated herself that it is within reach of her walks, "the banks where I find my violets; the meadows full of cowslips; and the woods where the wood-sorrel blows;" and "I am going to Reading Fair myself by and by, in a real market-cart which will be delightful — and I have already been cowsliping. Are you



MARY RUSSELL MITFORD.

like and what kind of life is lived there, better than from the writings of any other author. She takes you right into the midst of it; you see the hawthorne in bloom, and primroses in the turf, and the bowery hedge-rows, and are among the green lanes. You breathe the May time and hear the cuckoo and nightingale. One could make a catalogue of the English wild flowers from her pages. When the time for them to bloom came round she was looking them up in their haunts. Her letters and sketches are like floral calendars.

Once when thinking of going to London in April, she says that because "the country is so lovely in

fond of field-flowers? They are my passion — even more, I think, than greyhounds or books." She stuffed that little garden with flowers, and loved them all. "Dahlias and hollyhocks and tiger lilies. \* \* I have had some of them all, and I wish they were immortal." Another time, "the butterflies love china asters. So do I." And, "oh, that you could see my chrysanthemums!"

You can find hundreds of such bits in her letters. It is like a study of botany and ornithology, or the kindling of a love for them, to read what she says. Her letters and *Our Village*, with all her sketches of the country, are what young people will like best of



hers. Her poems and tragedies can be left to some future time.

Next to her fondness for her parents (her "dearest darlings," she called them) was that for flowers and animals. "All dogs follow me," she says. She was as fond of dogs, and as well known for her fondness as Walter Scott was; and never saw a beautiful one that she did not wish was her own. Once when she went to Lord Rivers' and saw his greyhounds, she wrote to a friend that he could not conceive what a thief she was in her heart:

"I was seized with a prodigious inclination to steal near a hundred greyhounds. Luckily, however, I recollected that, if I stole the greyhounds, I must likewise steal the keepers; and if I stole the keepers, I must steal the house and kennels; and if I stole the house and kennels, I must steal money to keep them, which might, you know, have certain consequences not very agreeable; so I actually came away without stealing, and, what is still more extraordinary, without even begging a greyhound puppy."

There were birds, cats and dogs in her company, till at almost the very last day of her nearly seventy years, when she wrote:

"Not only my common pensioners, the dear robins, but a saucy troop of sparrows, and a little shining bird of passage, whose name I forget, have all been pecking at once at their tray of bread-crumbs outside my window. Poor, pretty things! how much delight there is in common objects if people would learn to enjoy them; and I really think that the feeling for these simple pleasures is increasing with the increase of education."

I have quoted the last half of that because her belief has come true, and because her own writings have had so much to do with bringing people to love those "simple pleasures." How strange it seems now that it did not sooner occur to her to write about them! Instead of that she began with poems and tragedies; meanwhile all the best that was in her went into those delectable letters to her friends. It was not till she was driven to desperation for money, when she said that if it was not for her dear father and mother she would never write another line, but it was her duty "to try a little longer," and, she would make "the best use of her poor talents," that she prepared a small volume of what she called "playful prose," being "essays and characters and stories chiefly of country life, without sentimentality or pathos—two things which I abhor!" where the persons and the descriptions were true. "Yes! yes! yes! As true as is well possible."

That was the beginning of the *Our Village* books, and, in fact, of her prose. That little firstling "took with the bookseller," at once, and he called for two volumes more. In all she wrote five with that title. She had hit the popular taste, or more properly, she had created a taste, for she was the first in prose to write about common life. In her line she was as excellent as Scott was in his: he wrote gorgeously of the romance of history, of deeds that stir the

blood and make the heart leap, of splendid personages and pageants: she began at her own door, and took the houses and families as they came in order down the village street, the blacksmith and shoemaker, the baker's wife and the inn-keeper's daughter, the wheeler's shop and the carpenter's, the girls and the boys—especially "that unpopular class of beings, country boys"—and it is astonishing what delightful habitations and people they proved to be after her pen had touched them. Is it not passing strange that nobody ever thought that every day folks and things were worth writing about before? She gave us pictures of rustic and rural life which the world has never grown tired of. Writers have been following in her track ever since; many in England, and in our own country some of the best, like John Burroughs and Miss Jewett, but none have surpassed her; she keeps her foremost place.

The first series was printed in 1824; and it soon became known wherever there were readers of English books, and grew to be as popular in America as it was in England. Some years before her death she wrote, "Think of the American editions of my prose. *Our Village* has been reprinted in twenty or thirty places; and *Belford Regis* in almost as many; and I like it." Later, of her last pretty story, she says, "only think of their having stereotyped *Atherton* in America."

Miss Mitford's life, which began at Alresford, near the south coast of England, December 16, 1787, had a childhood of affluence with which her last years were in painful contrast. She always lovingly remembered that first home with its luxurious morning room where she used to cuddle down among the cushions, a plump, curly-haired pet of a girl, and fondle the dear volumes of ancient ballads which she was not yet old enough to read, but whose stories told by her nurse, she almost knew by heart. From this, a rich man's house, she had to move from cheaper place to cheaper, as her spendthrift father wasted her mother's money, till he had run through "six or seven splendid inheritances." After thirty years at Three-Mile Cross, where both parents died, the house (the one referred to in the beginning) began to fall over her head, and the walls seemed "to be mouldering from the bottom, crumbling as it were like an old cheese," and she made her final removal to a smaller dwelling with a tiny court and a garden and paddock, named "Swallowfield," where on the seventh of January, 1855, she died, having been in part supported by a pension for about twenty years, serene, affectionate and considerate for others to the end.

She had cared for father and mother with the most perfect devotion, "writing gay prose" while never free from anxiety about money, a care, she says, "that pressed upon my thoughts the last thing at night;" driven by family distresses to be an authoress, unable even then to earn so fast as the debts accumulated, but "thrice happy to have been able by so doing to be of use to them." Dear, faithful daughter! large



hearted, unselfish woman! She deserved the many friends she had, and the honor she received from all quarters; "people from London, or people from America, or people from Germany, or people from France, all clever and almost all pleasant," as she once wrote;

so that Three-Mile-Cross was like a place of pilgrimage.

The books by which young people will best know her, are *Our Village, Country Sketches*, and *Bedford Regis*; also, the *Life of Mary Russell Mitford* (told in her own Letters), edited by Rev. A. G. K. L'Estrange.

## THROUGH A MICROSCOPE.

BY SAMUEL WELLS.

### II.

#### THE OUTFIT.

NOW that we have got hold of the idea that the eye is an optical instrument, and that to increase its capacity for seeing small things we add to it other optical contrivances, making with it one instrument composed of several parts, let us look at such additions more particularly.

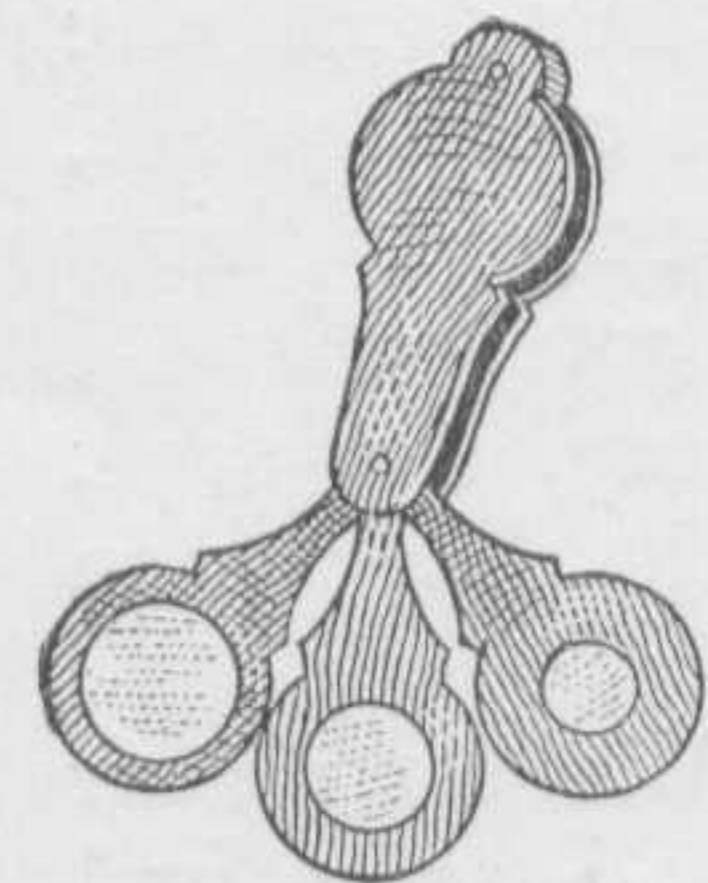


FIG. 1.

One pleasant September afternoon, three gentlemen were strolling along the banks of the Wissahickon, in Philadelphia's beautiful park, and stopping now and then to examine some little flower or insect with pocket lenses, when they discovered that some little boys out for a holiday were watching their proceedings with a curious and mystified interest. One of the gentlemen had a pocket microscope with three lenses



FIG. 2.

of different sizes, as in Fig. 1. Calling the boys up to him he showed them a little flower magnified. They had never dreamed of such a sight, and their wonder and amazement were as great as if they suddenly beheld a new world. You will be as surprised as they were when you take your first peep, but you must learn to see

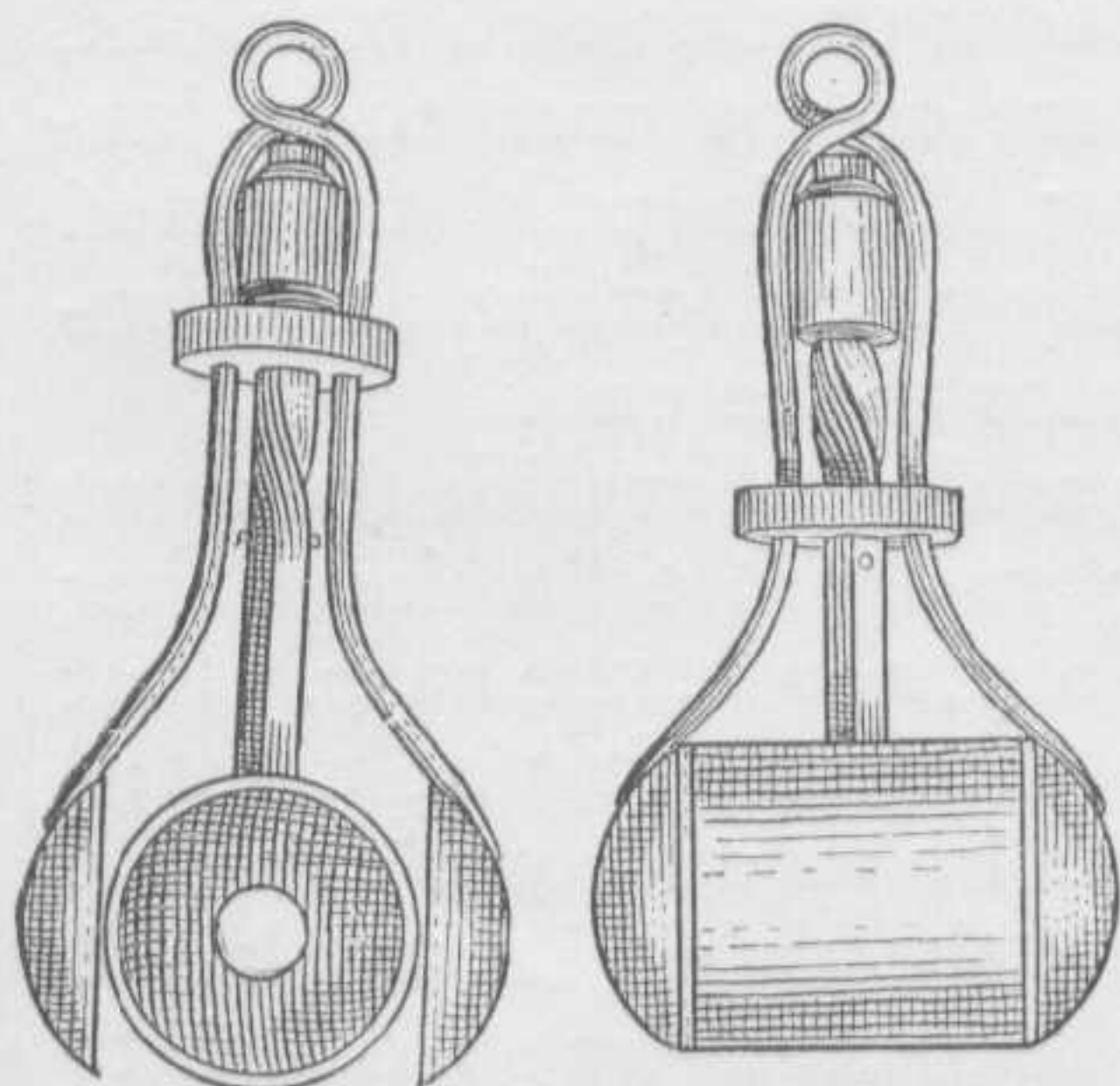


FIG. 3. — OPEN AND CLOSED.

such things *by yourselves*. The first thing you need is a simple microscope, that is, one with a single lens, small enough to be carried in the pocket. There are different forms and sizes of varying in quality and price. Those like the one just mentioned are made with from one to four lenses each, and are perhaps the most generally useful. Then there is the Coddington lens (Fig. 2) which is still more compact; and it is sometimes made in the form of Fig. 3.

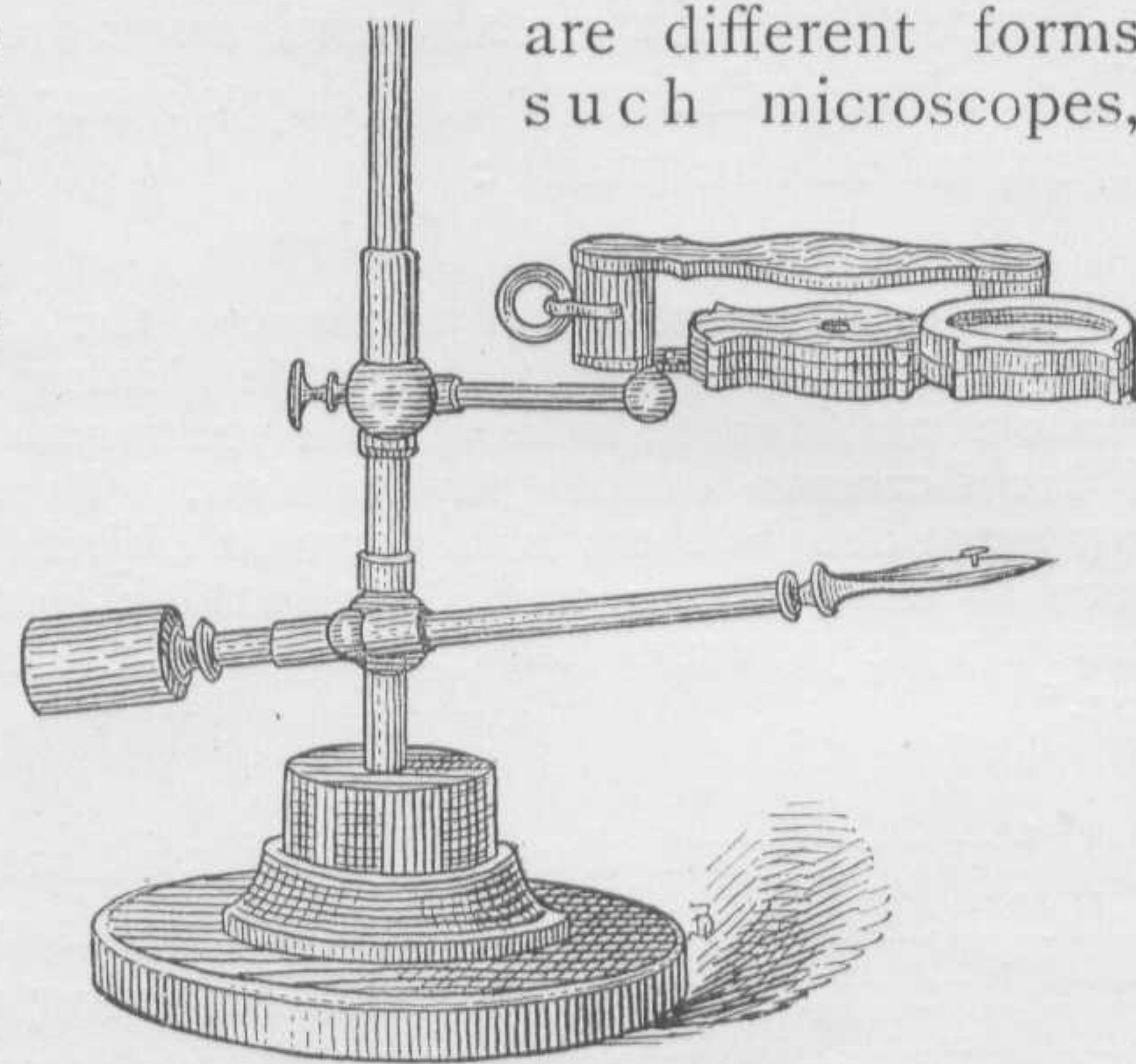


FIG. 4.

It has a very short focus, and is not, therefore, very easy to use. Achromatic doublets and triplets are made of two or more lenses cemented together and mounted in the same style as the Coddington lens; they are very much bet-

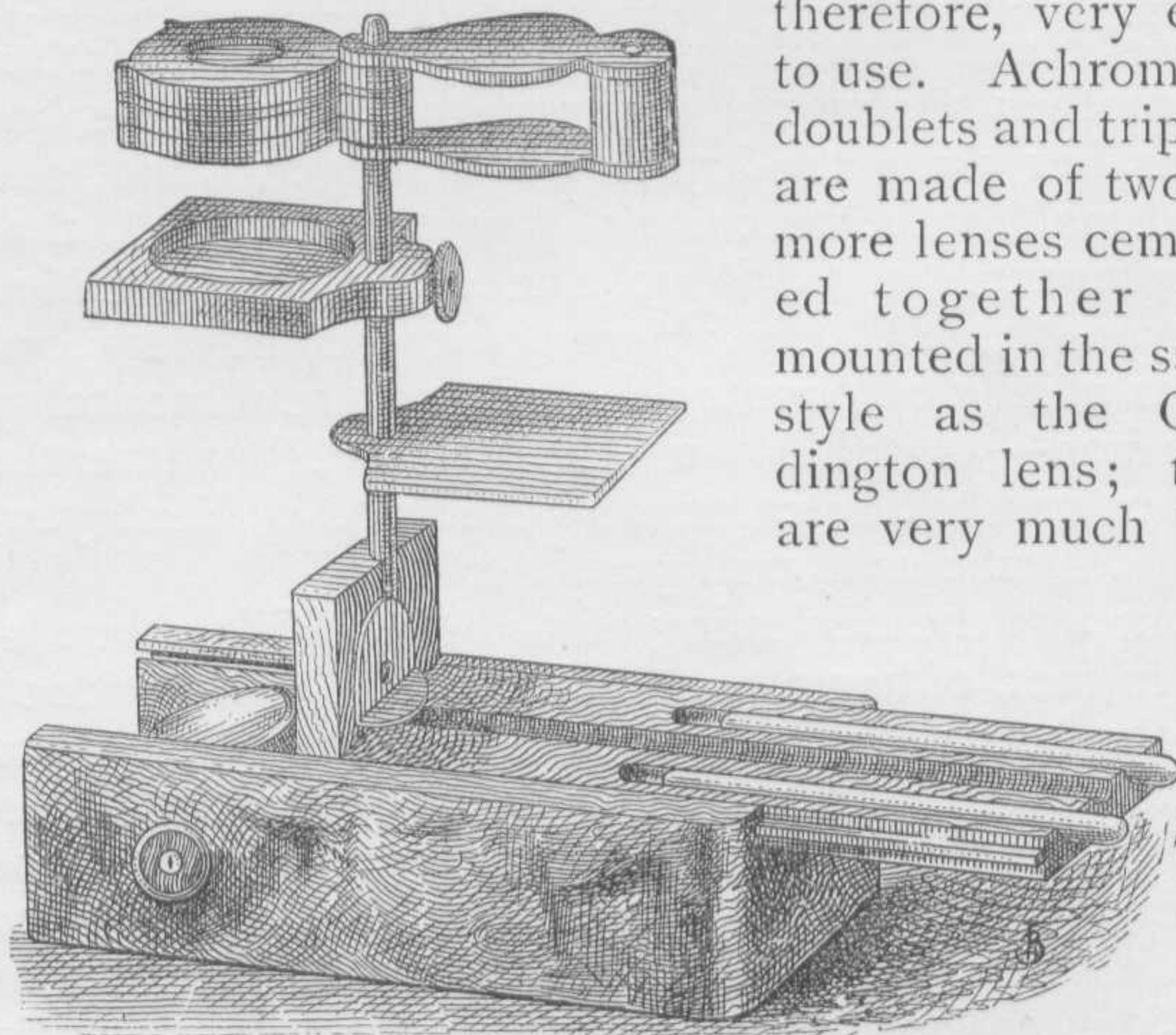


FIG. 5.



ter than the Coddington, but are more expensive.

There are several devices for mounting these simple microscopes on stands so that they can be kept steady and the objects to be examined placed behind them. One of these is illustrated in Fig. 4. An ingenious boy with a block of wood for a base, some stout wire and corks, can make one almost as useful, though not so handsome.

A more elaborate form is shown in Fig. 5. It has a glass stage to hold transparent objects, and a brass one for opaque objects, and a mirror below to reflect light up through transparent objects.

It is much better to use a good simple microscope than a poor and cheap compound one; be sure and remember

this and not be enticed to buy such an one by any representations as to its great magnifying power.

A compound microscope is one with a tube from four to ten inches long, an arrangement for holding the object to be looked at, and a mirror below to reflect light upon or through it. The lenses at the end next the object are small, and are set in a small brass

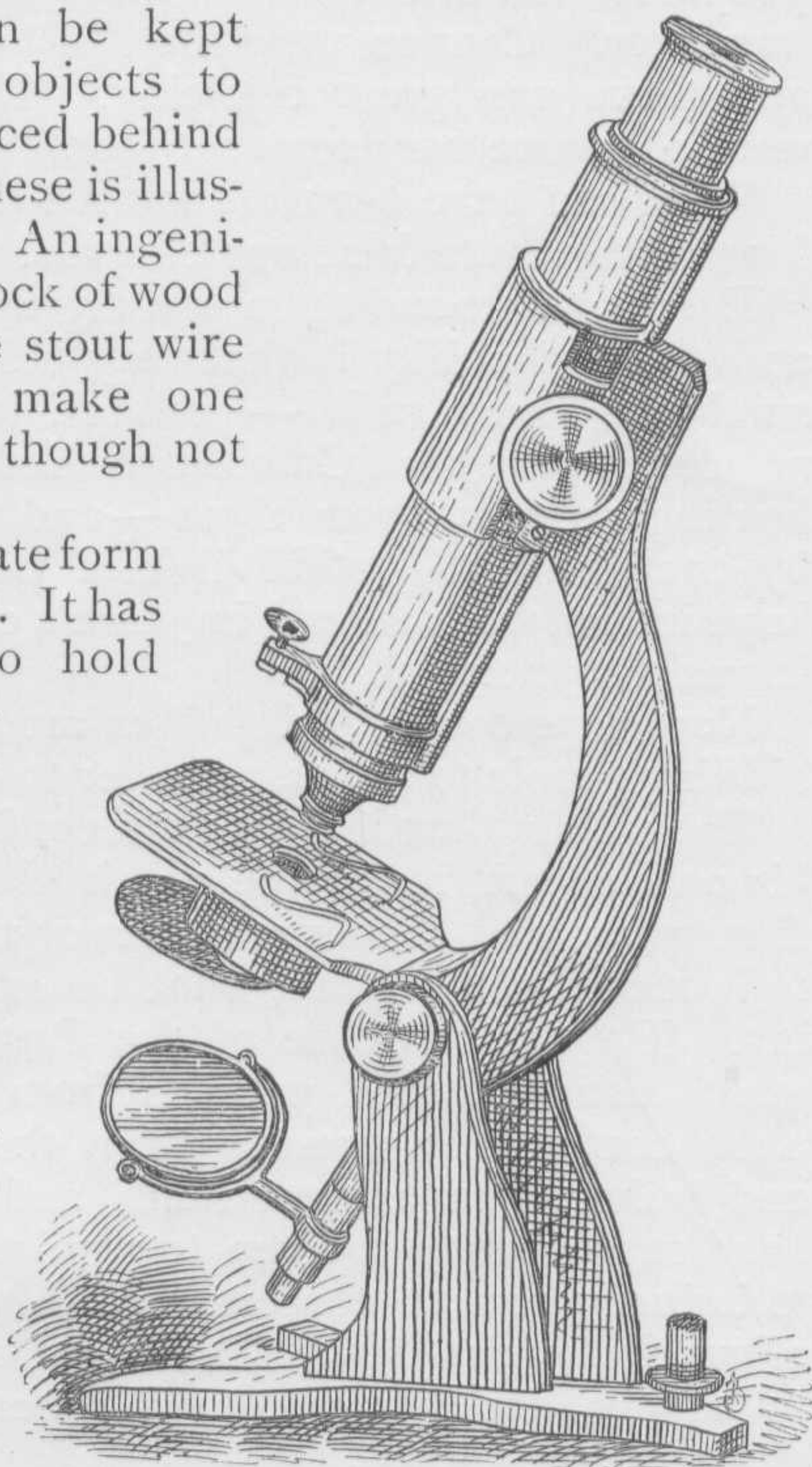


FIG. 6

tube, which is called an "objective." It screws into the large tube. The lenses at the end of the large tube next the eye are set in a tube, called the eye-piece, which slides in and out of the large tube. Different objectives contain lenses of different sizes according to the magnifying power desired, and they are named "two inch," "one inch," "half inch," and so on down to "one seventy-fifth." Eye-pieces are sometimes named "A," "B," "C," but more properly "two inch," and so on down to "one eighth." There is a very great variety in the forms of compound microscopes, from the very simple up to the very elaborate, and the prices vary accordingly. A simple but useful form is given in Fig. 6.

A great deal of money can be expended on a microscope and the various instruments made to use with it and which are called "accessory apparatus"; but it is best not to buy these instruments until you know just what you want, and not to spend much money at first except under the advice of a "microscopist."

Some simple things, however, you will need at once, such as a few slips of glass three inches long and one inch wide, called "glass slides," some pieces of very thin glass, called "cover glass," a pair of tweezers, some needles fastened into pen-holders for handles, and a few glass tubes commonly called "pipettes," or "dipping tubes."

These can be readily bought, and some of them easily made.



CATCHING ANIMALCULA WITH A PIPETTE.

## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

### II.

#### COLVIN AND THE BOORNS: CONFESSIONS.

**M**OST persons when they hear that a culprit has confessed his crime, consider that of course he must be guilty. "What is the need of any proof if the man has confessed?" Many novels and

stories are written upon the idea that an admission of guilt is abundantly sufficient to warrant punishing the person who makes it. But lawyers and judges have observed that confessions are very often fictitious.

This is well illustrated by the strange story of Colvin and the Boorns.

Seventy years ago there lived in Manchester, Vt., a family named Boorn, composed of father and



mother, two sons Jesse and Stephen, and a daughter who was married to a man named Colvin. This Colvin was of weak and gradually decaying mind; did but little to support himself and wife; was wont to ramble away, no one knew whither, for days and weeks at a time; and Jesse and Stephen Boorn found fault with him and treated him unkindly for his idle ways and because he and his wife depended on the Boorn family for much of their support.

At length Colvin disappeared on one of his erratic excursions, and failed to return. Some months afterwards the mystery was explained by finding that he had strayed, in a demented way, to New Jersey; but at the time when our story opens he was missing, and the neighbors were beginning to inquire what had become of him, and to discuss whether the Boorn boys could have carried their ill treatment of him so far as to kill him. No wonder that when people were talking of such an affair some of them should dream of it; and one old man dreamed "three nights running," that Colvin came to his bedside and disclosed that he had been murdered, and that his body was buried in an old, disused potato-cellar. The story of this dream led people to ransack that cellar, and some bones were found. These, as was ultimately shown, were remains of some animal; but when they were first found they were supposed to be Colvin's, and a great excitement arose against Jesse and Stephen Boorn; nearly every one believing that they had killed their brother-in-law to prevent his continuing a burden on the family, and that his spirit had revealed the crime by the dream! They were at once arrested and placed in jail, where many of the neighbors visited them, urging them to confess.

And they did confess. Jesse first described how the three were at work together in the field, when Stephen beat Colvin senseless with a club, after which the body was carried to the deserted cellar and buried. Stephen, who at first denied the charge, afterward made a written confession, substantially supporting Jesse's story; he, however, laid blame on Colvin, saying that the latter began the quarrel and struck the first blow.

Upon these two confessions—there was scarcely any other evidence—the two Boorns were convicted of murder. But it is very common to show some mercy to offenders who confess crimes and aid in bringing others to justice, and the legislature, probably for this reason, changed Jesse's punishment to imprisonment for life; leaving Stephen sentenced to death.

Now comes the strange part of the story. Both the confessions were false! Colvin was alive and well all the while! As a last hope, Stephen Boorn's counsel published an advertisement asking whether any person could give information of the missing man. This came to the notice of people in New Jersey, who sent word that a person resembling Colvin was working as hired man on a farm in Dover, in that State. This man was brought to Vermont,

and sure enough, he was the veritable Colvin. Then the excitement was greater than ever. Crowds of people rushed into the court-room to see the returned wanderer. Cannon were fired in honor of the news, and there was great rejoicing. The two prisoners were of course very soon set free.

What can have been the motive of the two Boorns for making these false confessions?

Every one around them was urging them to confess, and the probability is that they believed they would surely be found guilty—perhaps, indeed, they were not certain but that Colvin had died somewhere of a beating received from them—and that they hoped by confessing to obtain lighter punishment. This hope indeed was realized in Jesse's case; in Stephen's it was disappointed.

Nowadays courts and judges are very strict in forbidding people to urge a prisoner to confess his crime.

The rule is that if he makes confession entirely of his own accord it may be received against him; but if he was urged, if any promises or threats were made to induce him to speak, what he says goes for nothing. The famous case of the Boorns has saved a great many accused persons from being convicted upon confessions wrested from them by policemen and jailers. In ancient times and foreign lands it has been common to even torture prisoners in order to induce them to confess. Nothing of this kind is allowed by our law. Prisoners must be treated humanely, and left wholly at liberty to confess or deny as they choose.

False confessions are made from various motives. Persons who were poor, friendless and unhappy, have been known to accuse themselves of a crime in order to be imprisoned, or even in order to be put to death. After the famous "Great Fire of London," a Frenchman came forward with a story that he kindled the fire to earn a bribe which had been paid him for doing so; and he was executed for the supposed crime. Probably he had become weary of life, yet could not quite resolve to destroy himself. Some persons have such a diseased ambition to be talked about that they will make false confessions. About twenty years ago there was a mysterious murder in New York city, of a dentist named Burdell; and while police and people were making every effort to detect the offenders, a person avowed himself guilty. But inquiry showed he had no part in the crime; he only said so to obtain the temporary notoriety. The like has been done in many instances. A fit of insanity, or of drunkenness, may lead a person to confess something which he has not done.

Sometimes, no doubt, persons make fictitious confessions in order to disgrace or injure others whom they charge with having taken part in the offence, and sometimes the opposite happens—a relative or friend will assume a crime in order to shield the real offender. For example: In England, once, two brothers were suspected of a highway robbery. They were in fact guilty, but a third brother, younger than they, confessed that he committed it, upon which he



was seized and they were let alone. They escaped to America, after which the younger brother retracted his confession and made clear proof that he was innocent. Of course he could not be punished for the robbery which he did not commit; and his guilty brothers could not be, for they were out of reach.

Suppose a man enters the police office in a Massachusetts town and says: "Several years ago I stole money in Boston, and my conscience troubles me so much about it that I have come to give myself up to be punished." If the officers are not shrewd—if they take it for granted that because the man has

confessed he must be guilty—they will very likely send the man to Boston to be tried; and of course they must feed him and pay his car fare on the journey. When the party reach Boston the officers find that no one knows anything about any such theft as their prisoner confessed, and they have to set him at liberty. Thus he has been carried to Boston without having to pay anything; which is just what he wished.

Whenever we hear or read that a person has admitted himself guilty of a crime, we are not to be absolutely sure, at once, that he is so, but must remember that fictitious confessions are not uncommon.

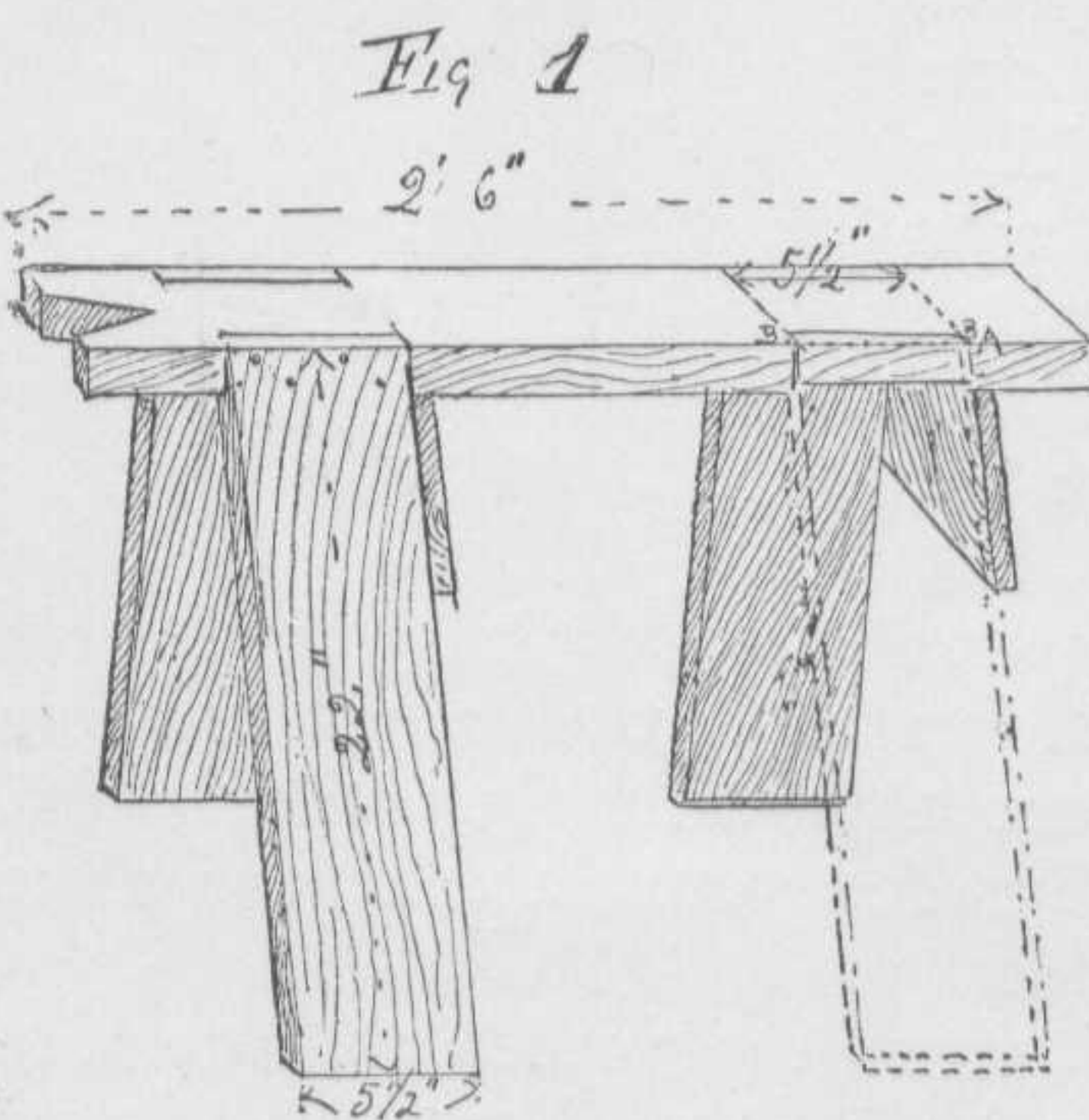
## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

### II.

#### MY SAWHORSE AND WORKBENCH.

NOW that you have a fair assortment of tools to work with, the next thing is to have a work-



bench; for even an accomplished carpenter can't do much without a good, strong, firm bench. And of course you must have a sawhorse before you *can* have a bench; but a sawhorse is a simple affair to make, and I will tell you how to set about it right away, for you ought

not to buy anything that with a little trouble you can make. Besides it will be good, plain practise with try-square, saw and plane.

The sawhorse for the average boy ought to stand about twenty or twenty-two inches high, so that you can kneel with one knee on it easily.

You must get two pine boards:

A, 6 feet long, 6 inches wide, 1 1-2 inches thick.  
B, 12 " " 6 " " 1 " "

Take A, cut off two and one half feet: if not already planed, plane nicely on all sides. (Unplaned boards are cheaper than planed boards.)

Take this two and one-half foot board and measure four inches from the end. Lay on try-square

and draw a line across the board at dotted line. (See right end of fig. 1.)

Then measure five and one-half inches more from this line: with try-square extend second line across the board. Measure one inch on all these lines from the outer edge of board, and connect by lines *b b* and *c c*. With cross-cut saw cut carefully through the one inch from *a* to *b*; then with chisel cut out on line *b b*. Don't cut quite as deep on the lower edge, for these openings are for the legs, and should slope out a trifle, that the legs may be farther apart on the floor than at the top when nailed on—one-eighth of an inch will make difference enough for a good slant. All four-leg sockets must be done alike, else your horse will be bow-legged and unsteady.

Now plane the twelve-foot board *B* (unless it is already planed). Square one end nicely; measure off twenty-two inches. Lay try-square and draw a line across the board. Take the cross-cut saw and saw neatly on the line. Smooth the end with a block-plane, bevelling it slightly, so it will fit firmly on the floor. This is for one leg. Do three more legs in the same way, always trimming the ends with block-plane, to make them stand upon the floor true and even.

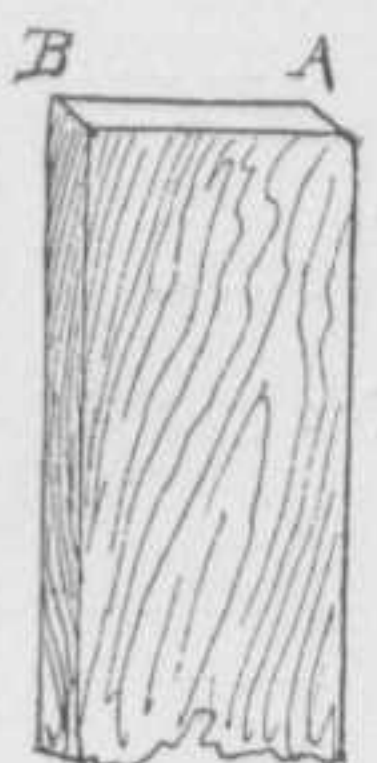
One thing, boys, you *must* remember:

In planing *across* the grain never plane to the end at first, for you will chip the corners and spoil the end. Keep reversing the block; *i. e.* first plane from *A* to *B*, then from *B* towards *A*. (See fig. 2.)

Before fitting the legs into their sockets, plane the legs to fit the five and one half inch spaces made in the first board.

The inner upper edge of the legs must come exactly level with the top line of the board. The

Fig. 2

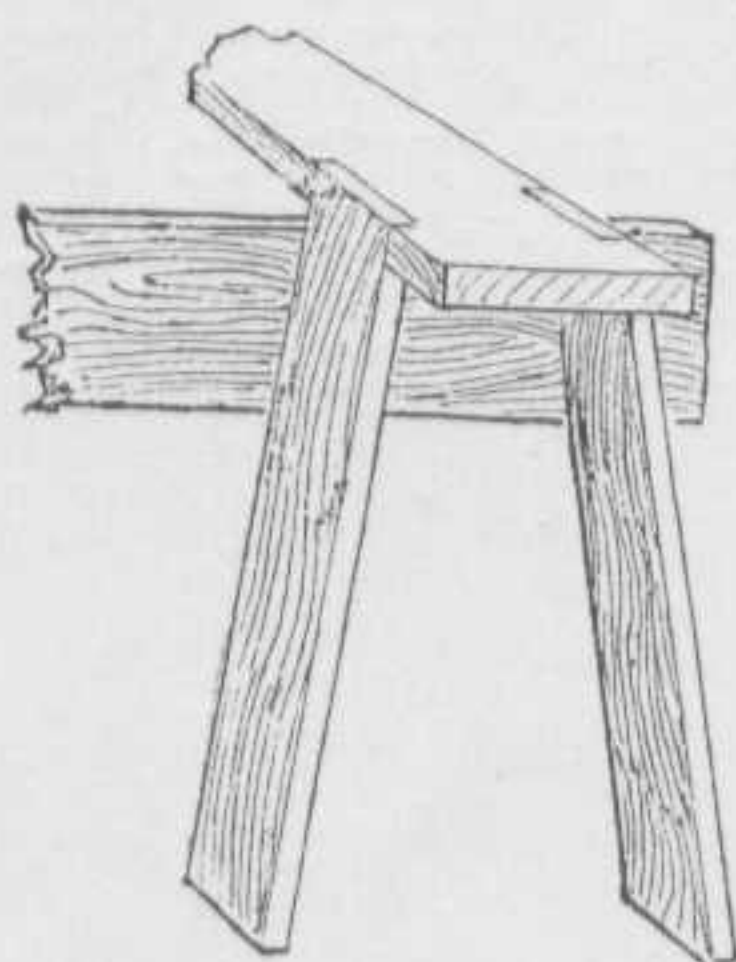




outer edge will of course be higher on account of the slope of the slot, and must be planed smooth with block-plane after the legs have been firmly nailed into place with three or four eight-penny nails.

To keep the legs from spreading apart at the ends, you must make a sort of brace.

Fig 3



Take a piece of the board left after cutting off the legs, and fit it across the legs under the top board in this way: Hold it close to the board and against the legs, then draw a pencil line, following the outside slant of the legs. (See fig. 3.) Now with cross-cut saw cut across on this line; trim with block-plane before nailing; put one piece on each end, nailing through to the legs.

One thing more and then your horse is done; ready to stand if not to go.

Find the middle of one end of top board, draw a line three inches long down the board, with try-square. Then *on the end* measure one inch each side of this centre line. (See fig. 4.) Draw line from *a* to *b*, and cut on lines with splitting-saw; this will leave a triangular space which you will find very useful by and by in cutting small pieces of wood.

From board *A* there ought to be left a piece about three and one-half feet long, and from board *B* a piece about two feet long. These you will put aside for further use.

Now for the Bench (with a capital B, because it is the principal partner in the firm of Carpenter and Co.).

Buy three good two-inch pine planks. Say two planks ten feet long, one foot wide, and one eight feet long, six inches wide. Ready planed, at the saw-mills around here, these cost about eight cents a foot; a little less unplaned. Besides these, you want one ten-foot inch board, one foot wide; this should cost about four cents a foot. Before you really start on your Bench, look around your workshop and decide where you will have it stand. There must be a space ten feet long against the wall, with plenty of light. A window at the left is the best.

One thing you must have which I didn't reckon with the tools; but it is easy to prepare. I mean a *chalk line*. There are fancy ones, but the sort I'm going to describe does just as well.



Fig 4

Get a piece of curtain-cord twelve or fifteen feet long, and make a loop on one end; then provide yourself with a good piece of common chalk; when you want to use it, chalk the line well by passing the line over the chalk as you would wax thread; to use it put the loop over

a nail at one end of the line you wish to chalk, hold the other taut, and snap the line smartly in the middle; it will leave a straight chalk line for a guide in cutting.

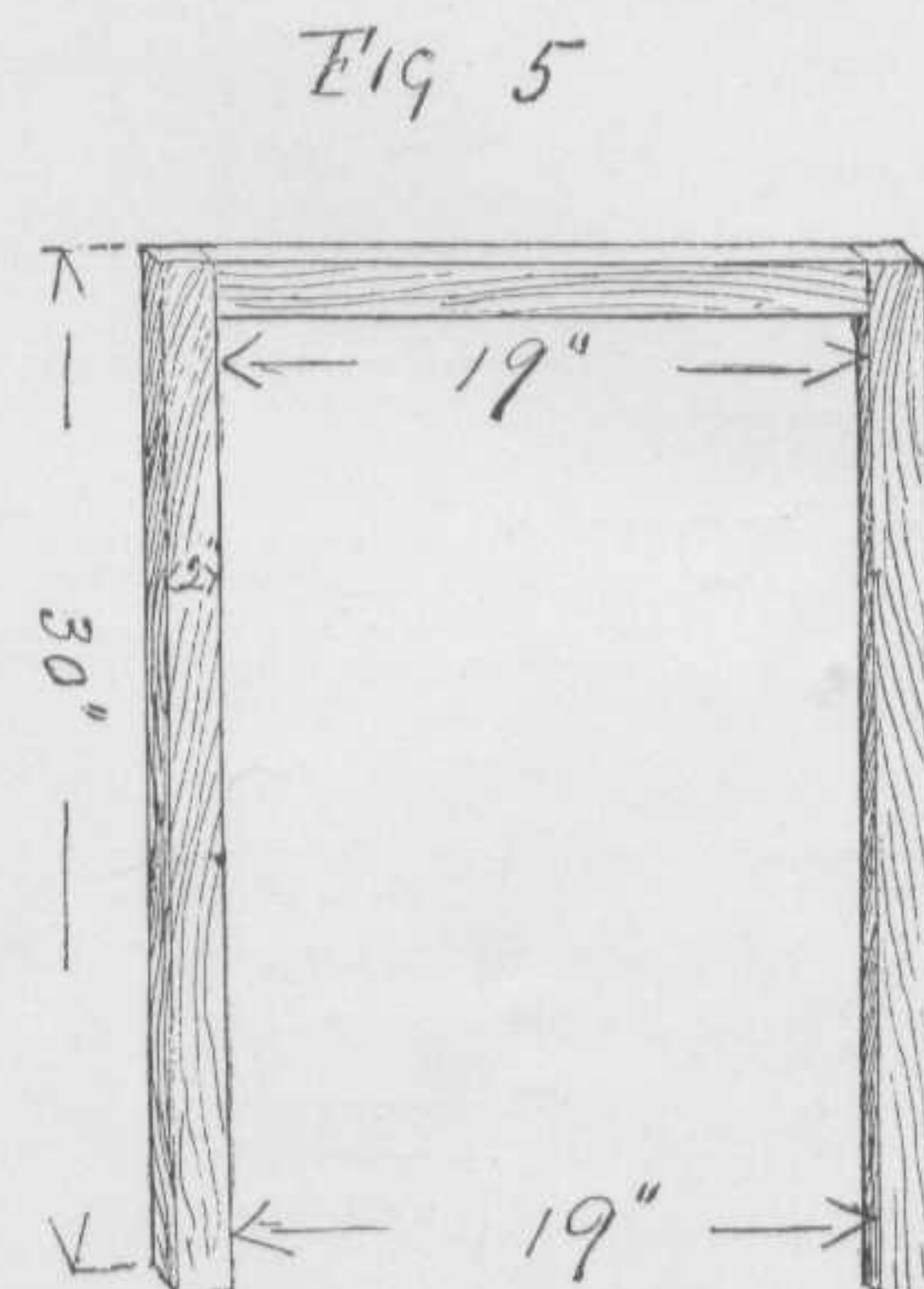
Now take the shorter of the two-inch planks, the one eight feet long, make a mark in the middle of each end, drive a small nail in the left-hand end exactly in the middle; having chalked your line well, slip the loop over the nail, draw the line taut down the middle of the board to the other or right-hand end, holding the line close to the board; pluck the string sharply in the middle and you will find an even chalk line the whole length of the board.

Put one end of the board over sawhorse, take the splitting-saw and cut carefully down the line, holding the saw a little more vertical than you would a cross-cut saw.

Having divided your board thus, lengthwise, you will have two strips eight feet long, three inches wide, two inches thick.

With large plane smooth the rough sides of these strips as well as you can, resting the boards on the sawhorse. One end of each strip must be good and square: if not so already, take small block-plane and square it as best you can.

From the squared end measure thirty inches; draw a line across the board. Then by aid of try-square make another line one eighth inch beyond. This makes it easy to saw straight across the wood with a cross-cut saw. Take block-plane and square the end nicely.



You have now prepared one leg of your bench. Cut another thirty-inch length in the same way from the piece left. Repeat this with the other strip. You now have four legs for your bench just alike with nicely squared ends.

For cross-pieces cut from the pieces that remain two lengths of nineteen inches each; cut and trim as before.

Take one pair of legs (*i. e.* two of the thirty-inch strips), lay them on the floor on the *two-inch* side, just *nineteen inches* apart. At one end, between the legs, lay one of the nineteen-inch pieces *also on the two-inch side*, so it will be flush with the squared ends of the legs; hammer the legs on to the ends of the cross pieces with two or three twenty-penny nails. This job ought to be done very neatly and accurately, so that the shape will be exactly like fig. 5. If you are careless and let the legs spread while nailing, your Bench will be hopelessly rickety.



## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

## II.

## THE NIGHT BEFOREHAND.

YOU would like to know how to get the upper-hand of your work, and keep it, instead of having it drive you all your life long?

Then let me tell you, Anna Maria, that you can't begin too early after you are thirteen, the *practise* of housekeeping. You may go to a cooking-class and learn to make charlotte russe, and arrowroot for invalids, and bone turkey for parties, and it is very useful to know just how an expert cook does these things; you may go to lectures which tell you all about the carbons and nitrogens of food, and how they combine; you may read and write down any number of recipes in nice little blank books, yet the first half-day's housekeeping will bring you face to face with more that you don't know than you ever dreamed of. You can as well expect to become a painter by reading the hosts of books written on art, and studying galleries of pictures, without handling a brush, as to learn anything about housekeeping without going into the drudgery with your own hands.

What is more, you must resolve to take the responsibility of the work, and learn what it is to be the working power of the whole household machine. You must learn how to be up to time with prompt meals, and laundry-work, to have supplies of clean clothes and towels always ready, to keep rooms tidy and fresh, and to renew things as they wear out, so that the word "homely" in your mind will never signify shabby or mean.

It is no small thing to stand at the head of affairs, and be the motive power on which depend the welfare and credit, the health, temper and spirit of the whole family. A late breakfast sends father and brothers to business with the whole day thrown out of shape; a poor meal leaves all the family to work or study without proper supplies to work upon, and they will feel weak, nervous and lacking in energy, perhaps in some vital crisis like that which found Napoleon at a memorable battle. The fortunes of the field were wavering; a bold movement at the right hour would have saved the day, but a badly cooked dinner had given him a headache, his brain was clouded and confused, his heart palpitating, when he needed clear head and firm nerve—he gave the wrong order and the battle was lost. When in midlife you come to find how essential the comfort of a well-kept home is to the bodily strength and

good conditions, to a sound mind and spirit, and useful days, you will reverence the good housekeeper as I do—above artist or poet, beauty or genius.

Between you and me, Anna Maria, it takes genius to be a first-rate housekeeper. A woman of third-rate will "let things go," and think they will "do," and make up all sorts of clever-sounding excuses for her shiftlessness, and even make a virtue of neglect, pretending she lets them slip for matters of higher importance. But the woman of keen mind and senses finds the dust in corners, and the smells from the sink and pantry, and the careless laundry and chamberwork intolerable and not to be borne, and amends all that other people have "put up with," to the injury of their health and brains, for generations. You may not be a genius of the first rank, Anna Maria, but you may have what goes with genius—a spirit of the first and finest order, which tolerates no secondary, slipshod work of any sort.

While your mother is gone to Tiverton will be a good time to begin your responsible housekeeping you think?

Before your mother goes will be better, for you will find the experience of an old housekeeper at hand the next thing to having a fairy godmother popping up out of the meal-chest or the chimney corner at the right minute. You will want all that your mother and aunt Jane and old 'Cretia, the colored washerwoman, and the receipt books can tell you. I never let any mortal, old or young, great or undersized, go out of my house without their telling me at least one thing I didn't know before, and you will find literally no end to the notions and helps you can pick up day by day.

To-morrow you begin then to do your best, and to better it. My dear child, to-morrow always begins the night before, and you can't get the good of your day without planning for it. To get breakfast quickly, you want ever so much done the night before. *Not* as the over-smart, half-taught women say in those wonderful home departments of the country papers, which show how little our women know about housekeeping, by grinding coffee and filling the teakettle the night before. The coffee loses flavor, and water that has been standing all night absorbs bad air and is unfit to use. Besides it is so flat that it can never make good tea or coffee. But you can have the dining-room swept and in order, the table set if necessary, and covered with a large white mosquito netting kept for the purpose. You are to bake bread to-morrow, and no good housekeeper wants bread "riz by



daylight," as that funny Mrs. Sanford says in the Round Robin novel. You want your fire to keep over night, in cool weather, and let me tell you that learning to manage a coal fire has tested the wits and endurance of cleverer women than you or I ever shall be. Shake down the ashes, and put on fresh coal with a layer of cinders on the top, then close all the drafts except the smoke draft. Why? Because else the gas from the fresh coal will fill the room with a dangerous, sometimes fatal air, and that from the cinders is worse. You see that little blue flame playing on the top of the cinders? That denotes the presence of carbonic-oxide gas, which is the dreaded carbonic-acid gas that kills people in mines and in old wells, what prussic acid is to arsenic, swifter and deadlier. The one-thousandth part of this gas mingled with common air has proved deadly, and the worst is that it has no smell that people commonly notice. Not long ago a whole school in Connecticut was found insensible from the fumes of this gas escaping from the box-stove which has been crammed with fresh coal and the drafts all closed. A workman's family were found dead from the same cause last year, having filled their cylinder stove with coal for the night and shut it up to keep. Always leave the smoke-draft open in stove, range or furnace. When there is a wind or it is very cold weather, and the draft is stronger than usual, drawing through every chink and seam of the iron, close the damper half way, and leave one of the stove-covers half off, sticking the poker into the fire to keep the lid in place.

In the morning, if you want early breakfast, never wait for coal to burn up, but fill your teakettle, first pumping off the water that has stood in the pipe all night till it runs cold and fresh—put four or five large sticks of kindling, three inches thick, to be particular, on the coals, open the drafts and whip on kettle and frying-pan to catch every instant's heat. You can in a good stove, cook beefsteak and potatoes, griddle cake and wheaten grits, or bake biscuit with this fire, by the time it burns down ready to put coal on. It ought not to take you more than fifteen minutes to get such a breakfast from the time the first blaze starts. It takes Irish Ann an hour and a half with her potherings and pokings, but with your intelligence and quick nerves you can do better. You may not do it the first time of trying, nor in a week, but in a fortnight, or month at the outside, you should have difficulties in your grasp and your hands so trained that things go of themselves.

To-night you may set griddle cakes, stirring corn meal, flour, or graham meal as you prefer into sour milk, or mixing with milk and water and cream of tartar or a spoonful of molasses, leaving the jar in a warm place to sour and rise. Why do you mix these over-night? So that the meal or flour can more thoroughly absorb the water or milk and swell each particle and develop its flavor as it cannot in hasty mixing just before it is cooked. You will find the

difference in the goodness of your cakes next morning. Sift your flour three times to make it light, after the compression it has in the barrel in which it was packed. Graham or corn meal will answer with once sifting. You want to sift graham, no matter how nice it looks, down to the bran, and take out any black specks; then put all the bran into the flour again. It needs to be sifted in this careful way because the graham, or wheat meal, which is the better name, easily heats or ferments in keeping, and may breed worms in spite of the careful grocer or housekeeper. Each quart of milk or water for making griddle cakes will take a heaping pint of flour or meal to make batter just right; if thick at night it will be thin enough when mixed in the morning. Keep this rule in your head, for it will insure griddle cakes that are good if other points are attended to. Set the batter in an earthen jar or pitcher twice as large as the amount it is to hold, for the mixture will swell and rise, and you want to be able to stir it without spattering or overflowing the vessel. You will prevent those dismal catastrophes of spoiled dresses, and floors and tables overrun with your cooking, by remembering always to use a large pan or jar for your mixing.

To wash the potatoes, which you fancy must be disagreeable, let them soak in plenty of water five minutes while you mix the cakes, then scrub them with a stiff whisk broom or brush, stirring them well in the pail, which is the best thing to hold them. Drain and rinse, then with a sharp penknife cut off the seed ends in a thin slice at each end, and cut out all rough or discolored spots which make the potato unsafe to eat. People should be much more particular about the quality of potatoes than they are, for a good sound potato is excellent eating, but poor potatoes are slow poison. Physicians have no doubt that cancer, and violent irritations of the blood, are caused by eating poor potatoes, infected with disease or poisoned by bugs and worms. No green-tinted or "false-hearted" potato is fit for food, and if it goes into the pot, it will spoil others boiled with it. You need not pare potatoes before boiling; remove all spots and leave them over night in plenty of water to freshen. If they stain your fingers, rub them with pumice stone or on the kitchen grindstone, which will leave them like satin for smoothness and neatness.

Set your bread, which I won't tell you about this time, and *cover* your mixtures with a cloth, and saucer or board over that. Have a broad soapstone or four bricks warm on the back of the stove to place the bread and batter on, for one great point in having either of these good is to keep them evenly warm all the time without burning, which the bricks will insure, as they hold heat. Bread should be covered with a fresh cloth and a piece of blanket over that with a board to keep all in place.

What next? If you have a cat and dog, you are bound to see that they are comfortable; the dog in a good dry kennel with board floor lined with pine



shavings which keep away the fleas that torment him, remembering to offer both dog and cat water the last thing at night, for want of which they often suffer before morning. You will be shocked to know how much our dumb faithful friends and pets suffer at our hands from thoughtlessness. They cannot complain, till extremity drives them to a whine or howl, and the only way to prevent this undeserved torture is to provide for their wants beforehand, regularly. Put yourself in their place, and do as you would have them do by you, were they masters for once. Give the cat her basket or cushion, unless she prefers gallivanting by moonlight.

You never want to shut up a room with a sink in it, unless in the coldest nights, for more or less bad air constantly comes up the waste pipes from the sewer or from the mucus which lines pipes in use, and which will certainly affect all food in the room or closets adjoining. Meat, milk and butter are especially sensible of taint from the malaria, and diphtheria often is traced to this cause in very good houses. You want to leave one or more windows down at the top for four inches, securing them from being opened by burglars by a stout nail in a hole bored through sash and frame, like an old-fashioned spring-bolt. Or a stout stick placed upright between the upper bar of the top sash and the top of the lower one, will keep it safe.

The last part of a housekeeper's duty is to go over the house and see that outside doors and windows are secure, and this is no light responsibility let me tell you. It was the great care of my life when I first had a house of my own, for I could not sleep till I had seen that every window was latched, and a nail above the sash, and the doors bolted and locked from cellar to attic. You must see to this yourself, or you will find as I did, on leaving it to servants or brothers, that the family went the risk of sleeping with the hall door open all night, somebody carelessly shooting the bolt without trying it to see if the latch was caught; or the back windows and pantry were left open and unguarded, a silent invitation for any prowler to step in. You remember that fearful Hull murder in New York, when the negro Cox confessed that the sight

of the open parlor windows, so easy of access, tempted him to pilfer, and then to suffocate his victim to prevent detection? It is a world of trouble to wander over a house, trying each of fifty windows perhaps, looking in the coal-hole and the closet under the stairs, and I have been laughed at for my care more times than was pleasant. You may look a score of years without finding anything amiss, but it is good comfort hearing any unusual noise in the night to be sure it is no prowler inside the house. Or if you ever found a ruffian's face looking through the slats of the window blind at eleven o'clock at night, as you sat writing in a lonely country house with only frightened women in it beside yourself, there will be unspeakable courage in the first thought that every bar was fast between him and the house. That little experience I went through one night in a cottage on the Nantasket road, and behind bolted doors and windows was able to hold parley with the intruder till neighbors heard our alarm, and drove him off. The same night two other houses on the way were entered through unguarded upper windows, and robbed of considerable amounts, doubtless by the same fellow. It was worth the five years' trouble before, the getting out of bed midnights and wandering over the house to be *sure* no bolt was neglected, or the cellar door forgotten, to have the habit and the assurance that all was safe that one particular moment.

Fasten doors with bolt and lock, leaving the key in the lock, and securing it against being turned from without by a stout wire bent over the shank of the door knob, both ends put through the hoop of the key, and turned up outside of it. Hang a chair on the knob if you like. Windows should have sash catches, but a nail driven above the lower sash is a very good safeguard, and blinds should be always closed at night with stout "snaps," which no wind can blow open.

Have pails of water drawn, in case of fire or sickness, and leave the kettle filled on the stove, to be ready with hot water for sudden cramp or congestion. It may save a life sometime to have hot water promptly, when ten minutes would be too late. Remember, in housekeeping as in everything else, nothing is so sure to happen as the unforeseen.

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## HEALTH AND STRENGTH PAPERS.

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BY PROFESSOR D. A. SARGENT.

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### II.

#### THE REASON WHY.

**I**N our first chapter we saw that the heroes of the world, both in fiction and reality, have been,

for the most part, strong boys and vigorous men.

Now I would not have you think that to get muscular strength should be your highest aim, or that strong boys necessarily become great men.

A locomotive engine is not valued for the size and strength of its drawing wheels, but for the speed it



can make, and the number of tons it can draw up a heavy grade. This depends as much, if not more, upon the condition of the boiler, cylinders, smoke flues, and feed pumps, than upon the external machinery. So it is with the human body. We must judge of its worth, not by the size and strength of its limbs, but by its capacity to *do*, which depends largely upon the condition of the vital organs. Heart, lungs, liver, stomach and brain—these are the primary factors with which we must deal, if we would be healthy within, happy without, and strong in everything.

But some of you will say: How can we govern our hearts, lungs, etc., when they are hidden from sight within our bodies? Just as easily as an engineer controls the inner machinery of his locomotive. He is familiar with the form and purpose of every part of the engine over which he is to rule. If she does not run as easily as usual, or refuses to work at all, he knows what causes the trouble and immediately sets things right. So it should be with you. You should know something of the structure and functions of the wonderful mechanism over which you are chosen to preside. Not that you may be able to repair a breakdown in the journey of life, for when this occurs it often happens that the injury is irreparable, but that you may be able to prevent disaster by exercising an intelligent control of all parts of your body, putting on the brakes here, letting on steam there, and so guiding and directing your energies that they may serve your highest aims and best wishes. Now the knowledge necessary to make the best of one's self physically is neither deep nor profound. The essential truths are so simple that a child can understand them.

Let us look at it in this way: Everything that lives on earth must needs have food and rest. In order to get food it must move, and again, in order to move it must have food. Between the intervals there is a change of motion, or a pause. Observe this law working throughout nature—in the tiny insects that crawl beneath your feet, in the birds of the air, fishes of the sea, and the cattle that range over hills and plains.

Look at the baby: a moment ago he was bending and straightening in every limb, and wriggling and twisting his entire body; but he has just taken his seventh or eighth meal of the day, and now lies sleeping in his cradle. In fact kicking, eating and sleeping—and we might add crying—make up the record of his first year's existence. How essential to his future welfare we shall consider later. But this law does not stop here. Listen to the beating of your playfellow's heart. Do you hear it? *lub-dup*, then a pause, *lub-dup*, and so on, throb upon throb, day after day, year after year, until it ceases to beat forever.

"What is the heart doing when it beats this way?" you ask. Pumping liquid food, commonly called blood, throughout the entire body. Food that has been dug and gleaned from the ground, caught in the

sea, shot on the plains, or killed and sold at the shambles. Food that has been toiled for, and bartered for, through individual strife, and trade competition, until at last it is prepared for digestion, and taken into the stomach, where it is assimilated, and then changed into blood.

Think you the strife and competition ends here?

Not a bit of it. Every atom and particle that enters into the structure of your body is struggling for its share of the food you have recently partaken.

But how shall it get it?

Just as the birds and fishes do; just as you or your fathers have done—by effort, by motion.

How shall it make the food it gets a part of its own structure?

By momentary rest, by freedom from effort, by digestion.

Upon this great law depends the whole theory of development. Lift a weight with the arms, and an increased supply of blood as food is sent forward by the heart to replace the material used up in the effort. Continue to lift the weight repeatedly for a while, and the activity of the whole vital machinery, heart, lungs, etc., will be greatly increased. Thus by a simple effort of the will, you can call any muscle into action, and by so doing better its condition by giving it more nourishment.

This is not all. By controlling the kind, amount and condition of muscular movement you can improve the status of the vital organs, upon which all activity depends. This is one of the first things to be attended to. We saw that one of the first essentials to life was motion, then food, then rest. Now some of the muscles of the body are so constantly employed when we stand or sit in one position for a long time, that there is very little motion, no extra food and no rest. The result to the muscles is just what we should expect. If for a long time you were kept at work holding a heavy weight without food or rest, you would soon grow weak. So do the muscles that are similarly used. They not only grow weak, but, being of an elastic nature, they gradually stretch out.

Let us suppose that these muscles are employed to keep the head and body erect. Then if you always bend forward while studying at school, sit doubled up in a rocking-chair at home, or constantly carry your satchel of books in one hand, the muscles that hold up your body from behind and on one side will grow weak, stretch out, and allow the whole form to bend over. If this state of affairs continue for a long time, you would become permanently round-shouldered, flat-chested and one-sided.

The effect upon the muscles would not amount to much, but the evil resulting to the lungs and heart for want of room, in consequence of the stooping position, might end in something serious. At least the function of these vital organs would be interfered with. Their duties are important ones. Our



ability to do anything with body or brain depends largely upon the condition of the vital organs. Let us see, then, that they have a fair chance to work, and are properly treated. The first essential is an erect position of the body. This is best attained,

*not by fixed attitudes and long continued efforts*, but by oft-repeated movements, followed by intervals of rest.

Some of the simplest and most approved methods will be shown you in the next chapter.

## RUNAWAY PETS.

BY FELIX L. OSWALD.

(CONCLUDED FROM LAST MONTH.)

OH, the pet! he's come back!" they cried, for their approach did not seem to disconcert him in the least, and he even answered their exclamation with a merry chirp, as though he meant to wish them a pleasant evening. Then the girls ran to the house and fetched their father; the pet, however, had disappeared, and a good-sized piece of pineapple-cake had managed to accompany him. The next morning they searched the woods far and near, and after a hunt of nearly three hours, the youngest boy at last came out of a taxus-thicket, followed by the monkey, who had joined him of his own accord and quickly followed the party toward the farmhouse. They fed him with sweetmeats all the way, till either their confectionery was exhausted or Benny disliked to abuse their hospitality, for when they approached the gate he seemed to take a sudden interest in the study of Mexican insects, and chased a red-winged locust into a weed-jungle, where he somehow managed to disappear for that night. Three days after they met him again, and after several ineffectual attempts to recapture him they decided to beguile him by an appearance of indifference. They fed him whenever they met him, but pretended to pay no attention to his movements, and turned their eyes away when they handed him the largest and ripest bananas. Benny did not object to that arrangement, though on the whole he seemed to prefer the generosity of the girls to that of the boys — for reasons which became more apparent when the biggest of the sisters yielded to the temptation of a good opportunity to collar him. Instead of trying to break loose, the Rhesus, with a coughing shriek, made a spring right at her face, whereupon the girl of course shrieked still louder and dropped her captive, who then, as if nothing had happened, continued to follow her, though not without a peculiar grin that seemed to say, "I'm up to such tricks, you know."

But it was not always visiting day with Benny: when they could not find him and called his name he sometimes answered them from the tree-tops, without con-

descending to show himself, and at other times only the cries of a nest-bird made them suspect that the Bobtail was prowling through the orchard. At the home he called only about twilight, so that in case of need, he would save himself under the cover of darkness. Out in the woods he waived such precautions; among the tree-tangle of a Mexican forest he felt himself able to defy all pursuers, though after his adventure with the doctor's girl he had a curious way of taking to his heels whenever the liberality of his visitors exceeded the usual limits. Even on the picnic-table, where they gave him an occasional chance for a private supper, a large piece of cake seemed to excite his suspicion, and if he took it at all he carried it off at a trot, evidently with a view of defeating a possible stratagem. He had a private storehouse where he hid such things — perhaps in a hollow tree, or in a cave near the Perote mountain-road, where the boys had sometimes seen him crawl out of the rocks, but nobody could ascertain the exact whereabouts of his treasury, for a monkey surpasses a squirrel as well as any other creature in the science of dodging — the art of vanishing at short notice, and when Benny wanted to take his leave, the first time you saw him sneak behind a tree was generally the last time you saw him for that day.

Five weeks had thus passed away without healing the estrangement between Benny Bobtail and his former friends, when the son of one of the neighbors offered to capture him by means of a lariat-pole, as the Mexicans call a slip-noose fastened to a long stick and braced with a piece of wire. As a preparatory measure they had to introduce the young man. They furnished him with an assortment of tidbits and gave him an opportunity to meet the Rhesus at supper and on the way to Perote, but for some reason or other Benny did not encourage the attention of his new friend. He treated him with a certain deference, as a companion of his old acquaintances, but gave him no chance for familiarities, and in spite of the long handle of the capturing apparatus, they had to wait for a better opportunity to test its merits. That opportunity at last came. One evening when the



children were chasing each other around the lawn, and Benny had a romp with his old playmate, the house-dog, the man with the lariat sneaked up from behind, cautiously dropped the noose over the monkey's head, and with a sudden twist and a shout of triumph jerked it back and sprang forward to collar his captive. But he had shouted too soon; though the lariat had been well thrown the back-pull had brought it a little too far down; in the next second the string

would have tightened around the monkey's neck, but just for a moment it caught against his shoulder, and in that moment Benny slipped the noose over his head and rushed away with a scream of terror.

And that was the last they had seen of him. They hoped he would get over his fright, and went out in the woods and called his name in every dell and every thicket, but nobody answered. Benny had concluded to cut their acquaintance.

## WAYS TO DO THINGS.

BY MARGARET LAKE.

### XIII.

#### KEEPING A JOURNAL.

I HAVE many times heard elderly people say, "How I wish I had begun when I was a child to keep a journal, and had persevered in it all my life!"

Now I have just that feeling and regret myself. I am so sorry about it that I cannot help urging it upon these boys and girls. It would be very pleasant to turn away back and see what was going on in my small world; and perhaps there would have been a record of some facts or events that were of importance outside of it. If, for example, there had been an occurrence so remarkable as the strange yellow day of September, 1881, surely I should have written down all about it. I wonder if any of you did so at the time. Another such day may never be known. It was one of the wonders of this century, and will have a place in the history of the country. It will be worth a great deal to know, years hence, from an actual witness, just how things looked and what took place.

But supposing there were no extraordinary events, it is an excellent plan to keep a diary; only—and it is a very important only—it must be a sensible, matter-of-fact one. I mean that you should not write sentiment, and about your feelings. That is nonsense and folly, and one of these years you would be ashamed of it. The less of the sentimental and emotional there is about young people, the better it is for them. Do not indulge in reveries, or have moods, or idle, dreamy ways. Anything that will encourage a cheerful, practical state of mind is good for you.

You may, perhaps, write incidents in your journals which you will laugh at some day; but if they are of a wholesome kind, no matter. If you will avoid

"gush" and romance and imaginings, you can afford to be merry over your childish chronicles.

I have several friends who kept some such kind of journals as I have been recommending; and with their permission you shall have a peep into them. One was away back in 1838 and 1839, in which a lad kept a record of what his father and the hired man and the boys were doing on the farm; likewise setting down such unusual events as occurred to break up the even tenor of his life. It shows about the forwardness of the spring: on such a day they ploughed the first furrow; on such a day planted peas; then he tells how they tried two new kinds of wheat, and how much they gave for a bushel. In short, there is a great deal of practical farming and gardening in it. It is very neatly written, in a legible hand, with dates and spaces, so that one can see at a glance that *that* boy was accurate and careful, and you can believe that when he grew up he was remarkable for thoroughness in everything he undertook.

Another of the journals was kept by a girl of twelve, and it is not so sober reading as the other. She tells about going berrying, and helping her mother; about who came to the house, and the family life generally. Some of it is amusing, and some of it is tragic. It is a genuine child journal of thirty years ago. Sometimes it is about a book she had read—one was a story of Miss Edgeworth's, which she says "she liked a little," and another was "Uncle Tom's Cabin." There are entries about getting the breakfast on Monday morning, "as I always do on washing day," she says: and here is one which shows that she must have been quite a cook.

"June 29th. I baked some currant, apple and custard pies, some wheat bread and seed-cakes. After dinner we dressed some dolls in bloomers."

"July 10th. When we were up in the woods, we found a little ground bird's nest in a hole where a rock had been blasted or dug up. The bird had



made a little hole in the sand and lined *the sides* with horsehair, and then laid one wee speckled egg in it!"

"*July 11th.* I have just paid ten cents for this book. It was all the money I had except two gold dollars and a three-cent piece, or I should have paid him the whole shilling; (it cost a shilling.) I will pay him the rest when I get some more money, if that time ever comes. I say as St. Clair does (in "Uncle Tom's Cabin"). 'Tom, my boy, this world is hollow as an egg-shell.'"

(The above is the only morbid passage, though below occurs a mourning piece, which explains itself.)

"*July 3d.* This morning I had a pine-apple. It was very good. I should like them in the house all the time. I feel very happy just now, for I keep thinking that mother will be at home before a great while. Besides all the papers came to-day, and I shall have them to read. When I hear an old noisy wagon coming I look out to see if it is mother."

Two o'clock. The *Tribune* has just come dressed in mourning for Henry Clay, who died June 29th, 1852, at sixteen minutes past eleven o'clock in the forenoon, aged seventy-five years, two months, and seventeen days. He was born April 12th, 1777."

"*July 29th.* After supper: Mother and I have been picking currants. The sky is covered with black clouds and it keeps thundering. Mother thought she heard it sprinkle, but she was mistaken, for it was Deacon Abbot down in his garden picking peas."

"*Oct. 8th.* Tom has gone to the State Fair at Deerfield. Mr. Smith said he came pretty near getting killed. I will not write *how* until I find out."

And so this quaint little girl keeps on. The next spring she tells how the crows are cawing and Katie, the Bantam, "is clucking to her seven little ones, who are 'weeping,' as Fred says, and the peach-trees are clothed in pink and white." And there is a great deal about going to school, and what the teacher said, and her schoolmates did; one of the last memoranda is this:

"*June 6th.* Summer came in "smiling with beauty." I thought I would write something about it, but June 1st we rode over to Pine Hill. Last Wednesday also I began to leave off drinking tea and coffee. The first two mornings I forgot it and drank two cups. Found strawberries last night."

I know a girl who keeps a journal about the books she reads, and when they are biography or history she makes a kind of outline in her own language; and that fixes the facts in her memory. Another begun a "Bird and Animal Journal," where she recorded the dates when birds arrived, and described their nests, and wrote down the stories which she heard from her friends, and other facts that had never been printed.

In this way she learned to be observing. And she tried to use just the right words in writing; to tell

the thing as it was related to her. This trained her to be accurate, and was a great help to her memory. It is much easier, as you may have found out, to tell anything than to write it. Keeping a journal will be of important service to you about acquiring the habit of putting your thoughts on paper. Many persons make such a blundering and bungling and vague use of language that they fail to convey their meaning. They use too many words, perhaps. Children usually speak to the purpose; and they are the best story tellers in the world, because they are simple and direct. The first thing in writing is to say on paper what you mean. And a journal is a good place for practise.

One other, and most pleasing of all, for a girl, is a "Flower Journal," beginning with the first pussy-willow, and describing what you see with your own eyes, giving the dates and the places, telling about the common flowers and their habits, and every particular about those which are rare. No matter if you have never studied botany; you will be learning the practical part, which will prepare you for the technicalities in the books. I have been acquainted with girls who have tried this and found great enjoyment in it. One of the journals began in this way:

"*April 11th.* We found the first May flowers. Day before yesterday we had the loveliest hepaticas I ever saw. More than a dozen flowers were from one root, and such colors as I never knew there were. Besides pale-blue and lavender and snow-white and pink, there were some *almost* crimson, and others were violet. They grow on a hill, at the south side, oceans of them, such a sight that anybody would be well paid to go two miles to see them. They began to blossom about the first of the month."

"*May 9th.* I have heard that bloodroot grows in dampish places, and I went clear up to Putney's Mills to be sure. It was lowland, and there were places where I at first thought some pieces of white paper had blown on the ground, and it was bloodroot. The flowers were just as wide open as they could be."

"*May 10th.* Yesterday a lady gave me some Gill-go-over-the-ground. She said it had blue flowers. I never saw it. It does not grow right about here. I have put it in a hanging basket. I have now found eleven kinds of wild flowers. I shall find all I can and keep a list. I mean to set out many kinds in our garden. I am going to study them."

You see there are many ways for both girls and boys. There are minerals, insects, wild creatures and domestic ones to write about. Try some plan, and do not give it up. Only you must bear in mind that you ought to write about the things that you see and do and know for yourself, besides those reliable incidents which come to your knowledge, not things from books. Cultivate habits of observation, and write simply. You will find it good preparation for future composition. You will be better fitted to express yourself, whether in a letter, sermon, essay, editorial, or magazine article.



## WHAT TO DO ABOUT IT.

**K**ITTIE L. W. "Can you tell me a cure for mosquito bites?" Put one teaspoonful of carbolic acid in a quart bottle of pure soft water and you have a lotion for bites of all kinds, "prickly heat," and all irritations of the skin. Bathe the parts affected with the wash till the smarting is over. A quart will last all summer, unless the mosquitoes are very bad. The best authority says lobelia extract rubbed on the bites, and witch-hazel are both good.

MISS M. M. Hollow nickel-plated flat-irons for heating over a spirit lamp cost from \$1 to \$3, according to size, at Boston house-furnishing stores. They are usually kept also by house-furnishing departments in large general shops. They are not heavy, but post-office rules do not allow hardware of any sort sent through the mail.

EDITH H. Press autumn leaves between six sheets of the softest, coarsest printing paper, under a smooth board and heavy weight. Gather leaves when free from dampness, press as soon as possible, changing to fresh papers each day for a week. They should not look "shiny," but a natural sort of finish is given by brushing when pressed, with thin turpentine varnish in which wax is melted, one ounce of wax to the pint of varnish. Have the varnish in a dish, warm, dip the leaves and hang them to drip into the dish by threads in a warm place. Keep them pressed till you want to use them.

DORA. "Please tell me what you think of pretty, homelike nicknames, such as Katie for Katharine. I have many friends who are anxious to know about this." It is the instinct of human nature all over the world to soften the names of those nearest and dearest, and to appropriate some pleasant or droll form of them for family use. But such names are the privilege of home and of the most intimate friends of either sex. They are graceful in the family, or the friendly easy companionship of schoolboys and girls who know each other well, but their use ends here. Nicknames or diminutives on a visiting card, the address of a letter, a hotel register or a school catalogue are silly and underbred, although widely used by people who know no better.

H. Sea beans are the pods of plants which have fallen from the shore into deep water, where they became saturated with mineral, and hardened like petrifications. The washing of the waves among pebbles gives them the fine polish which makes them pretty for cabinets and ornaments. Two or three kinds of sea beans are known, the red ones from Florida, and brown or chocolate color from the Sandwich Islands.

W. F. P. "A number of boys in my class at school wish to start a club. Will you please tell us what would be nice to do?" Why not form a Gen-

eral Improvement Society, to read together, take long walks over the country, to collect scraps of local history of the town or neighborhood, or to find out all that is known about the curiosities and specimens which boys are fond of collecting. Take one subject, sea beans for instance, and let each one of the club for a fortnight gather all the information possible by reading or by questions about that common curiosity, contribute his items at the club meeting, and have the collected wisdom entered in the club journal. Will not the flourishing boys' clubs through the country write to the Postmistress an account of their different objects and performances?

FANNY D. "I want to know about the Health and Strength Papers in the July number. Can I get one of those cards that tell you what to do, like Kitty's card? Where does Miss Mary Allen live?" I presume you can get one of the cards you want by writing to Miss Mary Allen, at the Gymnasium, Washington street, Boston, Mass. The Wise Blackbird cannot answer letters by mail, or in any way except through this department.

EVA L. "I am going to study botany, and will you tell me what book will be good to use?" For a little girl, or a big one either, who begins the study, there is nothing simpler or better than Wood's First Book in Botany, to be followed by his Class book of Botany, finishing the course with Professor Gray's scientific works on the subject.

LAURA AND ALICE. "Is millet seed injurious to canaries?" It is not desirable food for them if you can get anything else, but a little now and then does no harm with other seed.

JANIE AND BESSIE. "Please give full directions for making a white curtain or curtains for a window thirty-four inches wide and sixty-two high. Tell what material and how much should be used, whether one curtain or a pair, and how should the rings be fixed?" For such a narrow window a single short curtain of cottage muslin forty inches wide, or wider, and falling a foot below the frame. Hem each end, the lower one two and one half inches wide, sew the curtain-rings of the smallest size on the upper hem, and run on a fine brass rod; or, without the rod, draw a two-inch ribbon through the upper casing, full the muslin on it, and tie bows at each end over a picture nail. Such a curtain is to hang before the glass most of the time, and one corner pinned back with a bow in any airy fashion when lifted.

AMABEUR. "Will you please tell me when and where I can find the annual announcement of Prang's Christmas card prizes?" Write to the Art Interchange, New York City, or to Messrs. L. Prang and Co., Boston, Mass., enclosing a three cent stamp.

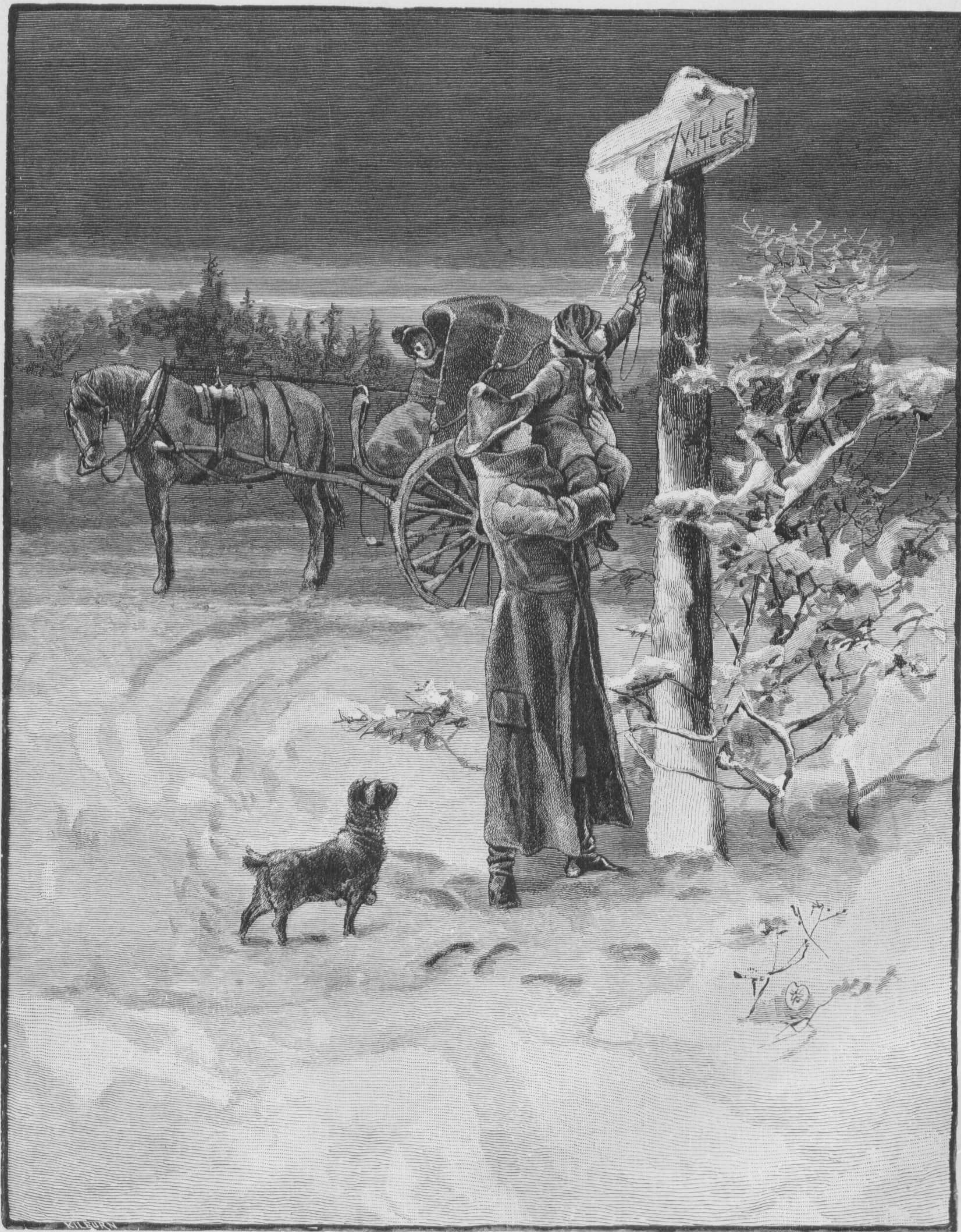
THE WISE BLACKBIRD.



## C. Y. F. R. U. COURSE.

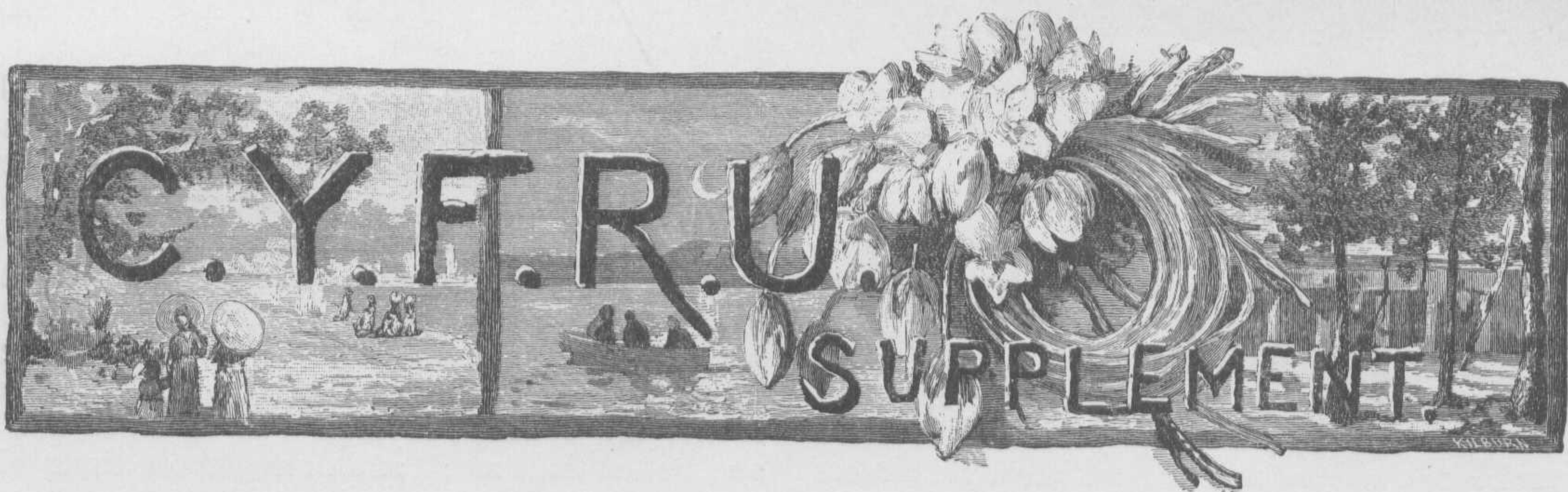
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CHRISTMAS JOURNEY TO GRANDPA'S.—LOST THE WAY.





## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### III.

CHARLES LAMB.

THAT good boy-king of England, the sixth Edward, half brother to Elizabeth, went to church one day and listened to a sermon probably two hours long, from the bishop who had the right to preach to royalty. Bishop Ridley had waited for this opportunity, and now invited the attention of his stripling hearer to the needs of the London poor; and Edward, who had a tender heart and was a thoughtful lad, was so worried over what he heard, that after service he sent for the preacher to come to his own private room, where, "in spite of his teeth," he made him sit down and keep his hat on, which were things not allowable in a subject, and they had a long, good talk together. The result was, that a generous arrangement was made by which a certain number (a great number) of poor children were to be taken care of and educated; and the "glorious charity" was to be continued on and on. Only two days after he had signed the charter, Edward died—being not quite sixteen years old—but the charity was destined to live.

Everybody has heard of it—the "Blue Coat School," at Christ's Hospital, on the site of what was once the "Grey Friars," from the body of monks who had a convent there. The boys of the school used to wear a queer uniform—I am not certain about it now; a dark-blue cloth garment partly tunic, partly gown, with a girdle about the waist; yellow worsted stockings; and a small flat cap of black worsted; besides these there was a sleeveless under coat called a "yellow," and a band around the neck: and they looked as if they had stepped out of a book of costumes. One who saw them in the street and did not know who they were and why they dressed so, would be at a loss to tell what age of the world or what part of it

they belonged to; whether they were little old men in girls' clothes, or little old women in boys' clothes; whether they were old or young; whether they were masquerading, or what they were out in broad daylight for with such things on. They have always been known as "Blue Coat boys"; and two great names in the world of books have helped to make this charity school famous, for Samuel Taylor Coleridge and Charles Lamb were "Blue Coat boys"—and not ashamed of it.

At the gate of Christ's Hospital one day in October just one hundred years ago, there stood a new scholar, timidly hanging back, and hardly daring to raise his eyes to the face of the porter who answered the summons of the great clanging iron knocker. He was only seven years old, and very small of his age; sickly looking, with a slim little body and mere spindles of legs and arms. But he had beautiful brown eyes full of intelligence, and a pleasant smile, which made the face one of remarkable sweetness, so that any one who looked at him felt that he was winning and lovable. He had hold of the hand of the gentleman who had brought him there, and the thin fingers clung to it like a bird's claws as he was led in and presented to the great school dignitaries as "the son of John Lamb, scrivener, and Elizabeth, his wife."

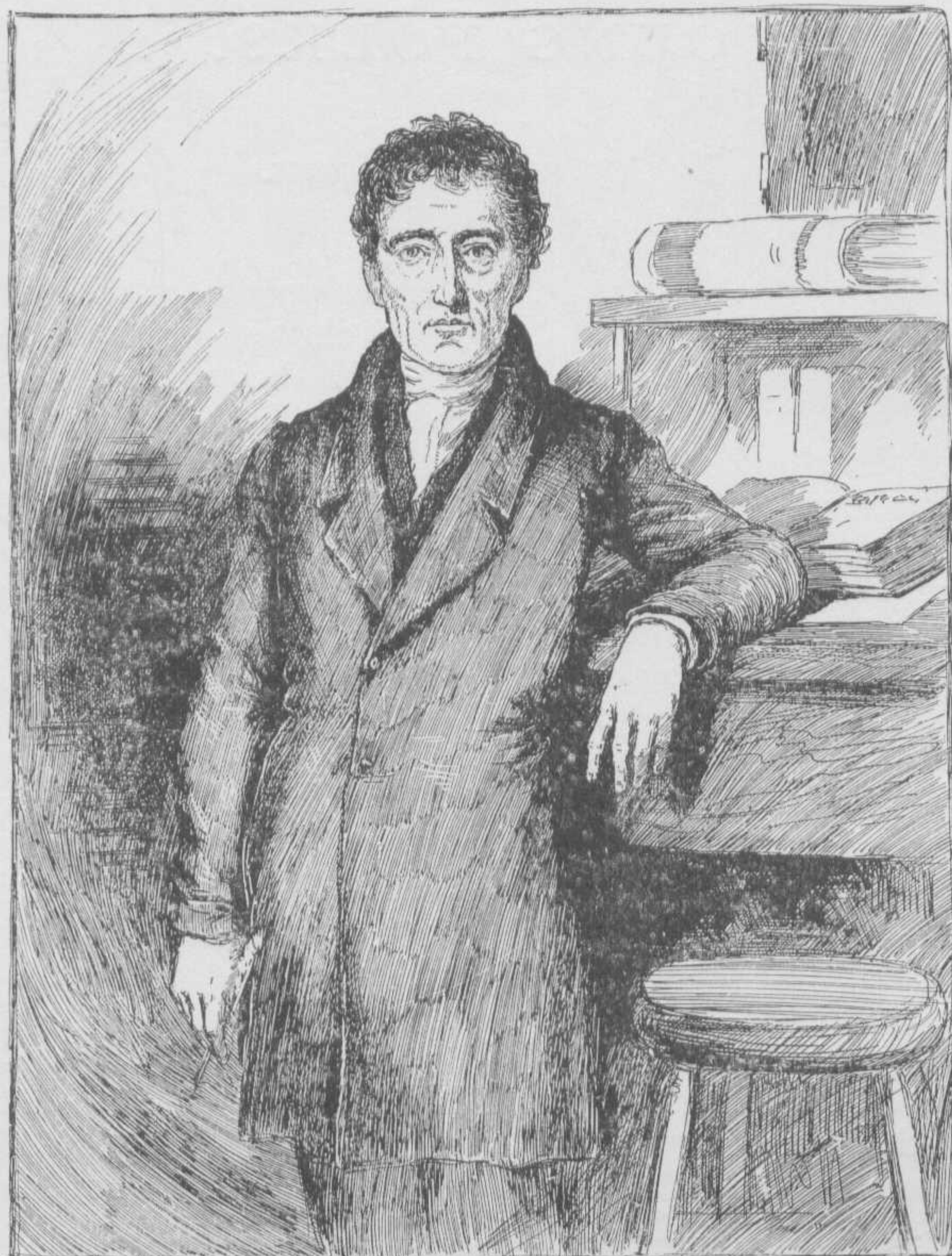
The little fellow's name was Charles: years later when he began to write the quaintest essays that were ever read, he took for signature the modest, musical one of "Elia;" and he has always since been as well known by that as by his own. Besides his other physical infirmities and disadvantages, he had one which was an embarrassment to him his life long—he was never sure of speaking a single sentence without stuttering. Such a puny, shy creature had not much chance in a school of hundreds of rough boys; but he stayed there until his fifteenth year, receiving all the education he ever had; and from Christ's Hospital he soon passed to the India House as clerk, where



perched on a high stool with columns of figures before him, he worked with few holidays and on a small salary, at "the drudgery of the desk" for the next thirty-three years.

A hard life that, and one of privations; but the worst is to be told. When he was barely twenty-one, his beloved only sister, ten years older, in a fit of insanity caught up a case-knife and stabbed their mother to the heart; and the poor father began to lose his mind. Charles positively refused to have his sister kept in an asylum; he said he would almost be ready "to burn by slow fires" before he would allow it; and for thirty-five years until his death, he took care of her, or, they took care of one another, in

to have affected), a fine classical scholar, with the delicate taste and humor and rare sort of culture which her brother had; a quiet, but very observant person; a pleasant voiced, well bred English gentlewoman — we all understand what that means — with brown eyes and a smile as winning as his, and a true, kind heart. She was a very precious and most congenial companion to him; he called her his "prop," his "ever present and inalienable friend;" he looked to her for counsel, saying, "she is older and wiser and better than me;" and during those times of temporary separation he was lost without her: "one does not make a household," he wrote, "and I am in despair." Though his life was never free from anxi-



CHARLES LAMB.



the tenderest and most devoted companionship. She was always liable to fits of insanity, and whenever the two went away on a journey they took a strait jacket with them. Both understood the symptoms when one was coming on, and then they would mournfully set off for the asylum, where she remained until it was over. One of the saddest things in his biography is where a friend tells about meeting the brother and sister one day, going there hand in hand, and both weeping bitterly.

Mary Lamb has been described by those who knew her intimately as a woman of uncommonly good sense (which her occasional insanity does not seem

ety, the two had a vast deal of comfort together. Charles Lamb would be lovable if for no other reason because of that loving heart of his for her, and tender solicitude for her all his days. It is so sweet that we almost forget the pain that went with it. We can overlook his faults too — how small they seem in the light of his good will to men, his charity, his gentle humanities, and above all his filial and brotherly devotion! "Oh, my friend," he wrote to Coleridge, "cultivate the filial feelings! and let no man think himself released from the kind charities of relationship: these shall give him peace at the last."

Lamb's first appearance as an author was in a thin



volume of poems while he was quite a young man; and he always had a partiality for his "bantlings" in verse, and his tragedies, but it was the *Essays of Elia* which gave his name to literature. These are what everybody who can appreciate him at all, turns to and lingers over, and what the world will always know him by. There is nothing to compare them with, because there was but one Charles Lamb. He was a quaint, odd, whimsical being, with a head full of antiquated lore out of the poets and early dramatists, with spirits as nimble as Shakespeare's Ariel, loving all sorts of conceits; and his essays and letters are a kind the like of which can nowhere else be found; as unique as they are captivating.

Never was such drollery, never were such quips and quirks and exquisite nonsense, such a play upon words, such gambols and friskiness, with such perfect finish and such charm; to those who catch his little subtleties it is delicious. The finest, airiest humor flashes about like chain lightning. It is a kind of slight-of-hand in language; a trick of the imagination taking shape in a sentence. He made much out of little, and gave a twist and a turn to everything; this is especially the case in his letters, which every lover of the *Essays* is sure to read. Sometimes he runs into a rhapsody and cannot say enough, but goes on crowding words and epithets upon one another, as whenever he writes about the delights of London—he was London born, and professed to hate the country:—

"Like the town mouse, that had tasted a little of urbane manners, I long to be nibbling my own cheese by my dear self, without mousetraps and timetraps. By my new plan I shall be as airy up four pair of stairs as in the country; and in a garden in the midst of enchanting, more than Mohammedan paradise, London. . . Oh! her lamps of a night! her rich goldsmiths, print-shops, toy shops, mercers, hardwaremen, pastry cooks! St. Paul's churchyard! the Strand! Exeter Change! Charing Cross, with the man upon a black horse! . . . All the streets and pavements are pure gold, I warrant you."

Lamb loved old friends, old associations, and old books. His volumes were few, but he knew them almost by heart; "contented with little, yet wishing for more," was his motto, applied here as well as in his other economies, and he picked up at book stalls his favorite authors, sometimes in a "detestable state of preservation," hugged them (literally) and pored over them, till perhaps his own thoughts were flavored with that odor of antiquity.

It is not quite easy to select for a young person the essays which will be the best introduction to Lamb. But almost first should come "Barbara S——," that little gem of a story, with that lovely little moral to it, tucked in so neatly at the close; and next should come "Mackery End," the Bridget of which, so subtly portrayed, was the affectionate Charles's equally loving sister, Mary Lamb herself; and then that refined, tender, pathetic one on "Dream Children," where more of the family history comes in—one of the choicest things he wrote, with the

little ones of his fancy creeping about him to hear about their great-grandmother Field, who lived in a great house in Norfolk. "Old China" is out of the same dainty web of family recollections, with Bridget's face lighting it up, and such an esthetic joy in the blue teacups: "And now do just look at that merry little Chinese waiter holding an umbrella big enough for a bed-tester over the head of that pretty, insipid, half-Madonnaish chit of a lady in that very blue summer-house." Is it not tempting?

"The Praise of Chimney Sweepers" is all London: and the two on "Christ's Hospital" give contradictory but very racy accounts of a boy's life there. It was Lamb's delight to mystify his friends; and it needed one who knew him well to say in which he gave his actual opinion of that great charity school. But of all the *Essays*, there is no other with such a flavor as "A Dissertation upon Roast Pig." How Lamb must have enjoyed writing it! You can almost taste the "crackling," and smell the savory odor—he makes it as savory as an oven at Christmas, if it *is* pig. If it was only turkey now! But then we should not have had the Chinese story of the swine-herd, Ho-ti, and his boy, Bo-bo, who let the cottage burn down with the nine pigs in it, and so discovered "roast pig." And "the thing took wing, and now there was nothing to be seen but fires in every direction," and so, all over China, where meat had before always been eaten raw, the custom of burning a house down to cook a pig continued till some genius arose and invented a gridiron!

The style of the *Essays* is something one can never too much admire—that unsurpassable English prose: not at all like Scott, not with Miss Mitford's off-hand ease, but fine and pure, with a firmness of his own from the old "wells of English undefiled." After the stately periods of Dr. Johnson, it had a wonderful fascination for readers. Still Lamb has not by any means the whole reading public for his: it is sometimes needful that one acquire a taste for him, as for olives or curry; but it *can* be acquired, and such a world of delight one will be admitted into who can thoroughly enjoy his graceful, piquant, and always charming pages! You cannot afford not to know Charles Lamb.

Bridget Elia's name must go with Elia's, for Mary Lamb was also a writer of books, as well as of some little poems, which Charles took great delight in. Her *Tales from Shakespeare* have not by any means gone out of date, but have just been re-published. Get them and read them, if you want the great dramas in a nut-shell; they will prepare you for a future reading of Shakespeare's self. Charles, who wrote a part of them, but wished her to have the credit of the work, says, "Mary has done them capitally, I think you'd think." After that she wrote *Mrs. Leicester's School* (not easily found now), of which Talfourd says that "no tales more happily adapted to nurture all sweet and childlike feelings in children were ever written," and Walter Savage



Landor says he had read them four times. To these the brother also contributed a part.

The gentle Elia had faith in the "old classics of the nursery," even to *Goody Two Shoes*, and in his humorous way he said to Coleridge:

"Think of what you would have been now, if instead of being fed with old wives' fables in child-

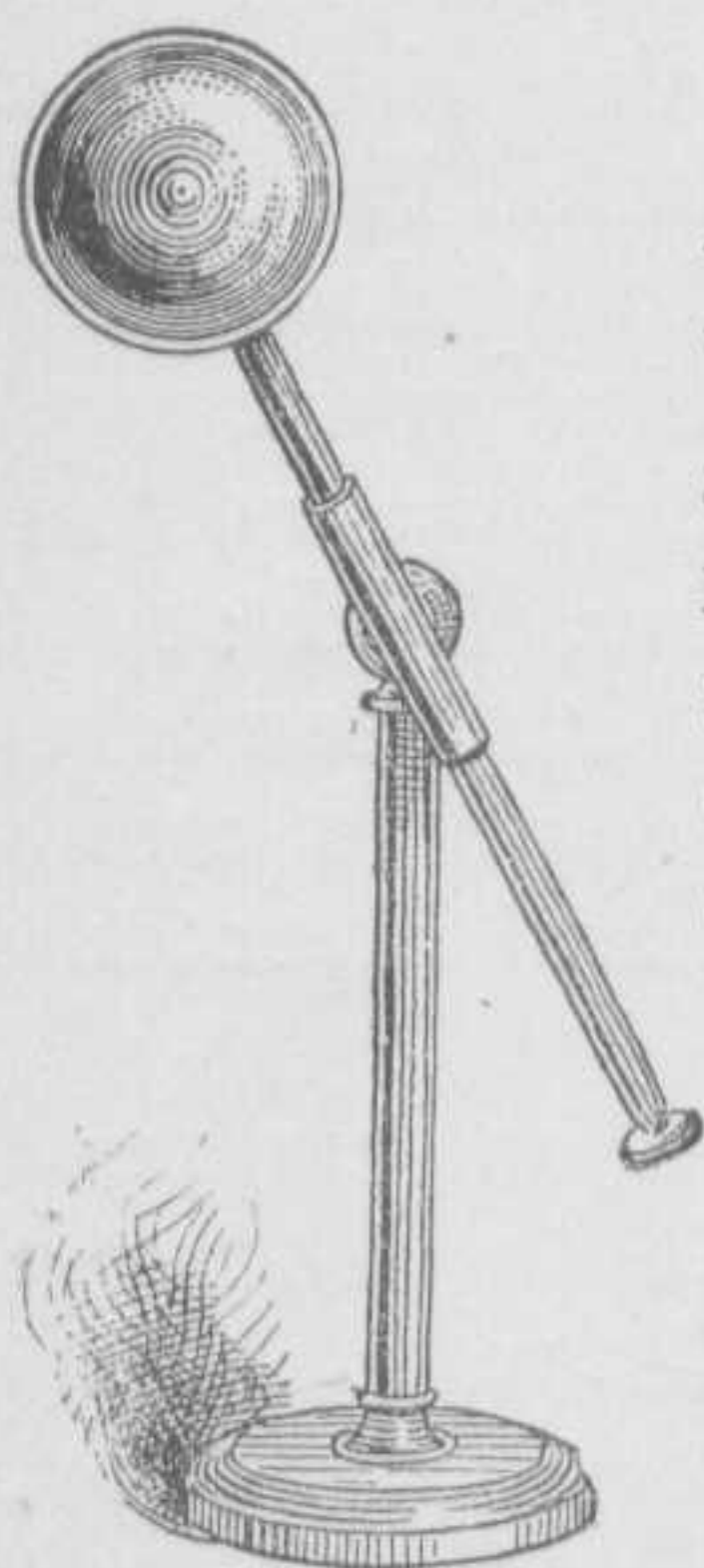
hood, you had been crammed with geography and natural history!"

The *Essays of Elia* were collected in a volume in 1823; *The Last Essays of Elia* in 1833. Lamb died in 1834, at Edmonton, aged sixty years. There are numerous accounts of his life, among which are that of Talfourd, together with his works, and that by Barry Cornwall; and recently a biography in the *English Men of Letters* series.

## THROUGH A MICROSCOPE.

BY SAMUEL WELLS.

### III.



BULL'S EYE LENS.

As soon as you have a microscope you will begin to look at everything and anything: dust, crumbs of bread, flour, starch, mosquitoes, flies, and moth millers in their season; flowers and leaves, cotton, wool, and silk. But this scattering kind of observation will soon weary you. In order to get the greatest pleasure and best results from your work, you must proceed with some system.

There are so many objects visible only through the microscope that life is not long enough for you to see them all, much less to study them. Some microscopists devote the time they have for such studies to the observation of single classes of objects; the physician observes the various parts of the animal structure, and calls his work "histology;" the botanist

examines the vegetable kingdom; the entomologist, insects; but in all these departments there are numerous subdivisions. As a guide to your work, you will find some book on the microscope very use-



MAGNIFIED 50 DIAMETERS.

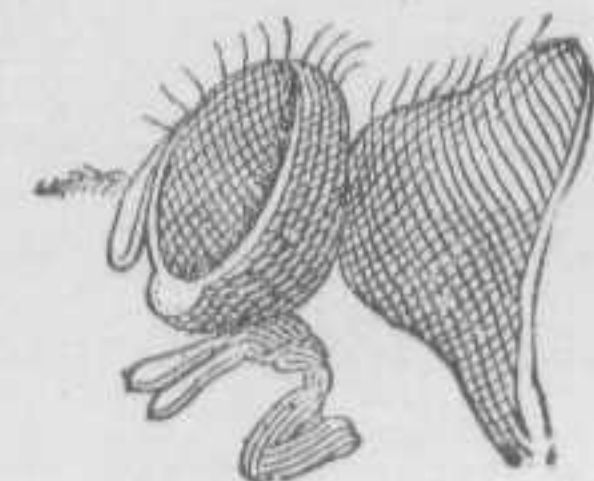
ful; the best one is *The Microscope and its Revelations*, by Dr. William B. Carpenter.

Objects through which you can see light are called "transparent," and are the easiest to look at with the microscope, because you can lay them on a glass slide and throw light up through them with your mirror.

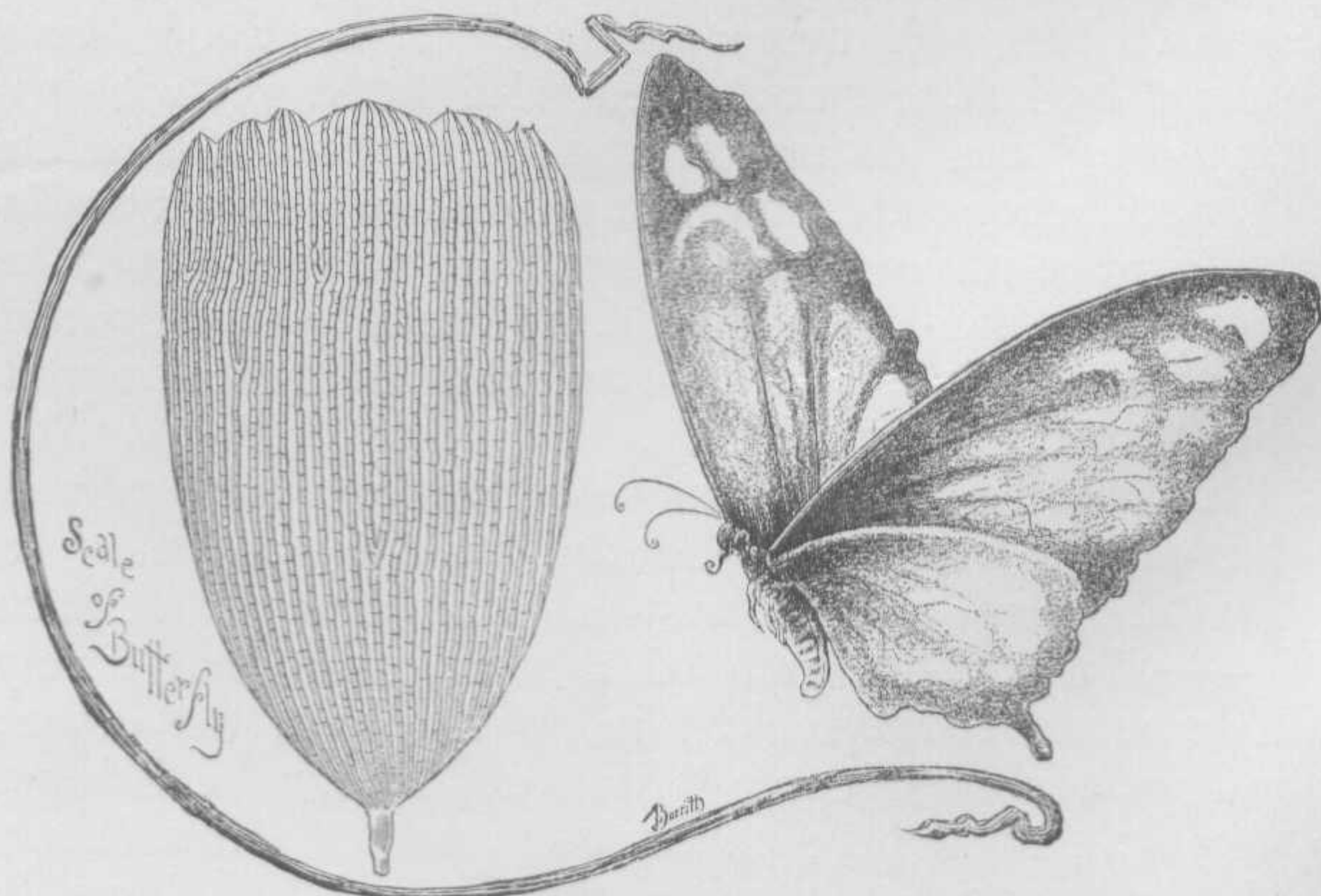
Thick objects through which light cannot pass are called "opaque," and are more difficult to examine, and can only be seen with low powers and a bright light.

In order to see such objects in the evening, you will need a "bull's eye" lens mounted on a stand, which you can place beside your microscope and between the lamp and the stage, condensing the light of the lamp on the object. (Fig. 1.) There are other methods of illuminating opaque objects, but they are expensive and difficult to manage, yet by and by if you persevere in this delightful occupation you will learn what they are.

Some persons will expect you to show them a fly as big as a horse; but you will soon be able to prove to them that you know more about the matter than they do. With a large hand-lens, you can see a whole fly at once and magnify it two or three times; but when you put it on the stage of your compound microscope and try to magnify it still more, you will find that



FLY'S EYE—5 DIAMETERS.



MAGNIFIED 200 DIAMETERS.

you can only see a part of it at a time, and the higher the power you use, the less can you see; in



other words, the more you magnify an object, the smaller is the field of view.

An inch-objective will show the head of an house-fly, which in a bright light is a very beautiful object. No picture can equal the delicacy of the color of the eyes of a live fly.

After a little practise you will be able to separate



HEAD OF MOSQUITO. MAGNIFIED 15 DIAMETERS.

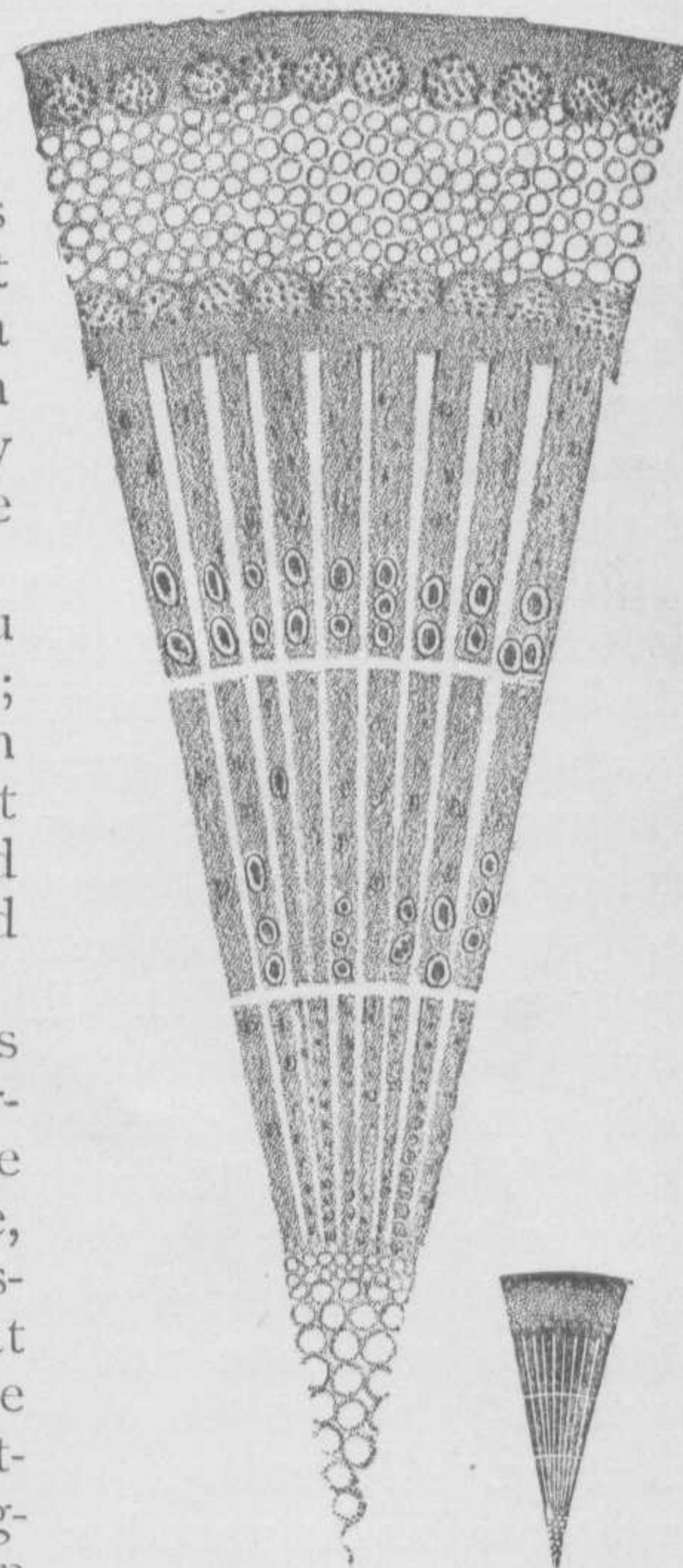
the different parts of insects and look at them with higher powers. The moth fly will soon be on the wing, and your aunt will not call you cruel if you kill and cut up large numbers of them. Put a little of

the dust that comes off from the wing of a moth on a glass slide, look at it with a high power, and you will find that each particle of dust is a pretty leaf-like scale. You have seen in summer the dust on the wings of butterflies; remember this, and next summer look at this butterfly dust with your microscope.

At this time of year you cannot find a variety of insects; even the busy mosquito is, like most of them, taking his long winter's sleep. But here I will show you a portrait of one taken from life, which you can verify next spring when he wakes up to breakfast.

Flowers and leaves you can still easily obtain; but in looking at them you must remember what has already been said about "transparent" and "opaque" objects.

Thin slices or sections of stems, leaves, and portions of flowers, can be made with a sharp knife, and examined as transparent objects, so that thus you can observe the internal or cellular structure of the vegetable kingdom. Here is a section of ashwood.



MAGNIFIED 50 DIAMETERS.

## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

### III.

#### THE STORY OF JENNIE DIVER: STEALING.

**J**ENNIE DIVER was a poor girl born in Ireland about one hundred and fifty years ago. Her original name was Mary Young. After her parents died, she went to London and tried to earn a living; but all this occurred while yet there were very few day schools or books, and no Sunday-schools or children's magazines or newspapers; hence the poor girl had not been taught anything but sewing; and she could not get enough employment. She was nearly starving when she made the acquaintance of some thieves who invited her to join their society, promising

to teach her how to steal. There is a famous story of a poor boy in London named Oliver Twist, who fell among thieves in nearly the same way; but he had knowledge or good conscience enough to run away from them the moment he found that their business was stealing; and after various hard adventures, he was adopted by a good family and reared to be useful and happy. The story of his struggles and success is very interesting. This girl consented to remain with the thieves. They gave her the name Jennie Diver. She practised the tricks they taught her, and at length became very skilful. For example, she one day went to a church where she heard there would be a crowd, and watching the people until she saw a gentleman wearing a diamond ring, she held out her hand to him.



The gentleman seeing a young lady extending her hand as if she wished to be helped up the steps, reached his hand to assist her, and while he was doing so she contrived to twist off the ring. At another time she fitted herself with false arms and hands and attended church, and while she sat with her false hands folded, apparently listening to the service, her real hands were busy stealing the watches of the ladies sitting near her.

These are only examples of a great many tricks she practised. For a long time she was successful and escaped detection, but at length a lady feeling Jennie's hand in her pocket taking out some money, caught her by the gown, and she was arrested and taken to court to be tried. She was found guilty. At that time the punishment for stealing (more than a shilling's worth) was death, and poor Jennie was accordingly hung. At the present day she would only be sent to prison and fined, but even these punishments disgrace any one for the rest of life.

Young persons are more likely to be tempted to steal than to commit any other crime; and often stealing seems easy and safe. It really is very dangerous and disgraceful. The story of Jennie Diver shows that if so cunning and dexterous a girl as she could not escape detection, an ordinary boy or girl cannot hope to. The money one covets may seem within safe reach; the fruit desired may be temptingly handy; the jewelry so admired, the watch, the dress, the book one would take, may appear to be unguarded; and often a person is not detected the first time. Generally, however, a thief is at last caught, and is disgraced for life.

One reason for this is, that detectives are even more ingenious than ordinary thieves. A store-keeper who suspects a clerk of stealing will sometimes mark a piece of money or a bill with minute, peculiar marks, and put it in the drawer. If, next day, he searches the clerk's pockets and finds there the marked money, he knows that the clerk has been stealing from the drawer. Many thieves have been caught by a detective who pretended to assist them, but really was watching to see what they would do. For instance, a man was once suspected of stealing his neighbor's cattle by means of branding them with his mark in place of the mark of the real owner.—Ask some grown person to explain to you how cattle on the Western prairies are branded with their owners' tokens.—One day a detective in disguise came to the farmer's house and asked if he did not wish to hire a herdsman.

The farmer said "yes," and questioned the disguised detective, who answered all the questions so satisfactorily that the farmer hired him. He then began watching everything which the farmer did, until at length he detected him in changing marks of cattle. Then he threw off his disguise, arrested the farmer, and took him to court to be tried. However safe everything may appear, no one can ever know but that there is an ingenious trap set for him by detec-

tives. Another reason why stealing is so dangerous is that persons cannot sell or even show stolen property anywhere in the neighborhood without risk of being asked where they got it. It is considered evidence of stealing that a person is found with the stolen property and cannot give an explanation showing that he came by it innocently. Another reason is, that even if a thief is not actually detected, he is usually suspected, and when the neighbors once begin to suspect a person of stealing they will not employ him, invite him to their houses, or make friends with him any way.

Young persons are sometimes perplexed to know what they ought to do in case of finding anything which has been lost. A great many stories are related about this. The rule is, that whoever finds a lost thing ought to return it to the owner; but if the owner cannot be found, the finder has a better right to the thing than any one else. If one should find a purse of money lying on the sidewalk, and should pick it up saying to himself, "I will hide this money and spend it," this would be stealing. But if he should take it meaning to advertise it and make inquiries of the owner, there would be no theft: and after he had made proper efforts to find the owner without success, he could lawfully spend the money himself. The chief question is, What was the intention in the finder's mind? This is sometimes difficult to be ascertained.

In one instance a horse jumped over his owner's fence and ran along the highway several miles, when he was caught by a farmer. This farmer put the animal in his barn and began to use him, driving him to market and to meeting, etc., but he did so publicly. At length the owner heard where the horse was, and made a complaint for stealing. But the judges said that the farmer had used the horse so openly that he probably did not intend to steal it, but was only using it till the owner should appear. True, he ought to have made inquiries, but omitting to make inquiries is not as bad as theft. In an instance in a city there was a little girl who owned a canary bird which she kept in a cage hanging against the fence in the yard. Some children who lived next door unhooked the cage, carried it into their house and hid it; but they did this in joke, and to tease their neighbor, and when they thought they had kept it long enough to frighten her, they put it back. However, they were accused of stealing; but the judge said that taking a thing temporarily for fun or mischief is not stealing, though it may be very wrong. In Iowa a flood once swept away a great part of a village, and all sorts of articles were left on the banks of the stream when the water subsided. A man found some clothes and some valuable papers. The clothes were not marked, the papers bore the owner's name, but both belonged to the same person. The finder carried them all home. Not long afterwards he was prosecuted for stealing the clothing. But it appeared that he had



made inquiries for the owner of the papers, therefore the judges said that he would probably have given up the clothing as soon as he learned the owner, and therefore he must be acquitted. Intention to appropriate the thing to one's own use is necessary in theft.

Accordingly, if a person who finds anything behaves as if he meant to hide it and use it himself, he is likely to be pronounced a thief. For instance, when some workmen were digging in a street one of them found a roll of about two hundred dollars in bank notes, sticking between the stones. His duty was to make known that he had found the money, and to inquire for the owner. Instead of this he concealed

it and spent part of it the same day. The judges said that this was stealing. There was once a man who dropped a sack of coffee out of his wagon while he was driving along a country road. About a mile beyond he missed it, and then returned, looking for it, and asking persons whom he met. One of these very persons had found the sack and hidden it, apparently meaning to come for it some time when he could safely do so, and when the wagoner inquired of him he denied having seen it. However, he was caught, and the judges said he must be punished as a thief. All honest persons who find anything of value, endeavor to restore it to the owner.

## THE FIRST NEW ENGLAND WASHING-DAY.

(November 13, 1620.)

BY MARGARET J. PRESTON.

HO, Rose!" — quoth the stout Miles Standish,  
As he stood on the *Mayflower's* deck,  
And gazed on the sandy coast-line  
That loomed as a misty speck

On the edge of the distant offing —  
"See! yonder we have in view  
Bartholemew Gosnold's 'Headlands':  
'Twas in sixteen hundred and two

"That the *Concord of Dartmouth* anchored  
Just there where the beach is broad,  
And the merry old Captain named it  
(Half swamped by the fish) *Cape Cod*.

"And so as his 'mighty Headlands'  
Are scarcely a league away,  
What say you to landing, Sweetheart,  
And having a Washing-Day?

"For did not the mighty Leader  
Who guided the chosen band,  
Pause under the peaks of Sinai,  
And issue his strict command,

"(For even the least assoilment  
Of Egypt the spirit loathes —)  
Or ever they entered Canaan,  
The people should wash their clothes?

"The land we have left is noisome,  
And rank with the smirch of sin:  
The land that we seek should find us  
Clean-vestured without and within."

"Dear Heart" — and the sweet Rose Standish  
Looked up with a tear in her eye:  
She was back in the flagged-stoned kitchen  
Where she watched, in the days gone by,

Her mother among her maidens  
(She should watch them no more, alas!),  
And saw as they stretched the linen  
To bleach on the Suffolk grass.

In a moment her brow was cloudless,  
As she leaned on the vessel's rail,  
And thought of the sea-stained garments,  
Of coif and of farthingale;

And the doublets of fine Welsh flannel,  
The tuckers and homespun gowns,  
And the piles of the hosen knitted  
From the wool of the Devon Downs.

So the matrons aboard the *Mayflower*  
Made ready with eager hand  
To drop from the deck their baskets  
As soon as the prow touched land.



And there did the Pilgrim Mothers,  
 'On a Monday,' the record says,  
 Ordain for their New-found England  
 The first of her Washing-Days.

And the children were mad with pleasure  
 As they gathered the twigs in sheaves,  
 And piled on the fire the fagots,  
 And heaped up the autumn leaves.



ON CAPE COD SHORE.

And there did the Pilgrim Fathers,  
 With matchlock and axe well slung,  
 Keep guard o'er the smoking kettles  
 That propt on the crotches hung.

"Do the thing that is next—" saith the proverb,  
 And a nobler shall yet succeed:  
 'Tis the motive exalts the action;  
 'Tis the doing, and not the deed;

For the trail of the startled savage  
 Was over the marshy grass,  
 And the glint of their eyes kept peering  
 Through cedar and sassafras.

For the earliest act of the heroes  
 Whose fame has a world-wide sway,  
 Was—to fashion a crane for a kettle,  
 And order a Washing-Day!

## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

### III.

MY SAWHORSE AND WORKBENCH (*continued*).

TO give greater firmness to the bench there must be some braces made this way: Take the ten-foot inch board; square one end; measure

twenty-three inches with try-square; cut off nicely with cross-cut saw. Now you have a board twenty-three inches long and twelve inches wide. Divide in middle at each end; connect the points with chalk line, then cut down this line with splitting saw.

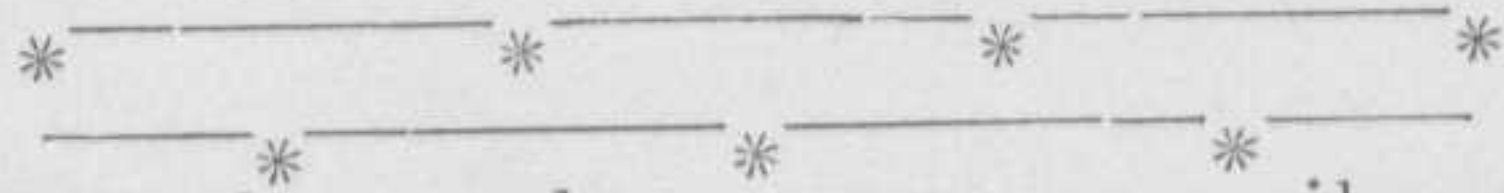
You will have two pieces twenty-three inches long and six inches wide; these are the two end braces.



Lay one of these pieces across the legs you have just joined, at the closed end. All the edges must be flush; if not, plane them and make them true. You will see that if you have measured and cut carefully they will come right, for the legs are each two inches thick, making four inches, and the cross-piece is nineteen inches, making twenty-three in all; just the length of your brace. Nail the brace firmly into both legs and cross-piece with six-penny nails. Do the same with the other set of legs.

Now in the space you have chosen for your bench, stand up both pairs of legs endwise to the wall, and six feet apart, leaving full two feet clear beyond, as your bench will be ten feet long when done.

Take the two big planks (the ten foot ones, two inches thick), measure two feet from each end of each plank: draw a line in direction *a a*. (See fig. 6.) Then parallel to *a a*, draw another, *b b*, one inch farther toward the middle of the board; then another, *c c*, an inch beyond that, always measuring away from the ends. On these lines *a a* and *b b* mark the places for your screws in alternate spaces, thus —

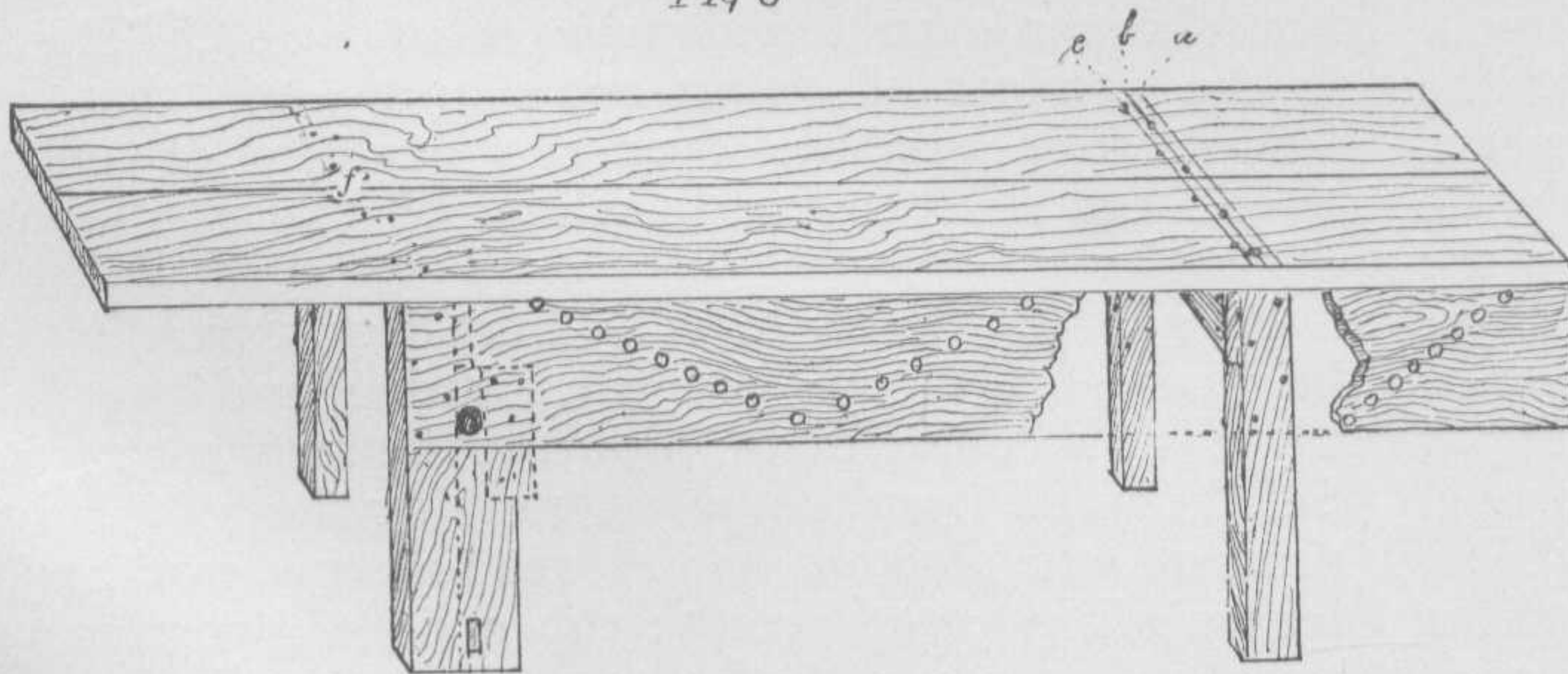


Remember always that screws or nails put in diagonally like that hold more firmly than the same number in a straight line.

Before putting in the screws, see that the legs stand parallel and close to the wall; put the first board on the legs so that the back edge of board is even with the back edge of the legs. Screw firmly into place, taking care to have the outer edge of the legs directly under the first or dotted line; this brings the screws evenly along the cross-piece.

Lay the second board close to the first, securing in same way; the front edge of this second board ought to project one inch beyond the legs. The heads of the screws on the top of the bench must be sunk.

Fig 6



You have left a board eight feet long, one foot wide, and one inch thick.

This board is to be put on in front directly under the top board and against the legs. It should come flush at the *right end* only, leaving space of two feet at the left. Nail this board on to the legs with six-penny nails. You have now a capital bench, which only needs a vise to complete it.

Cut from the board *B* (left from sawhorse) a length

of eighteen inches. Square both ends nicely; lay this against the left hand front leg, flush with the outer edge and coming close under the front board, and nail firmly on to leg.

For seventy-five cents at a hardware store, you can buy a wooden screw about two feet long for vise, with shank one and three fourths inches diameter.

On the front board, ten inches from top of bench, and about five inches from left edge, draw a circle one and three fourths inches in diameter; this circle when cut out should come as close to the leg as possible without cutting it.

To cut this hole take a five eighths bit and bore a series of holes round the inside of the one and three fourths inch circle. (See fig. 7.)

The piece in the middle will fall out and leave a rather rough hole; but the edges can easily be trimmed.

Then take the board *A* (the three and one half foot piece), cut it thirty-one inches long. Square one end and then round it as at *D*. (See fig. 8.) On the back side draw a pencil line through the middle; place the board against the left leg, with the sharp edge flush with *top* of bench, so that the pencil line will bisect the circular hole. Draw a similar circle on the board, and cut out as before.

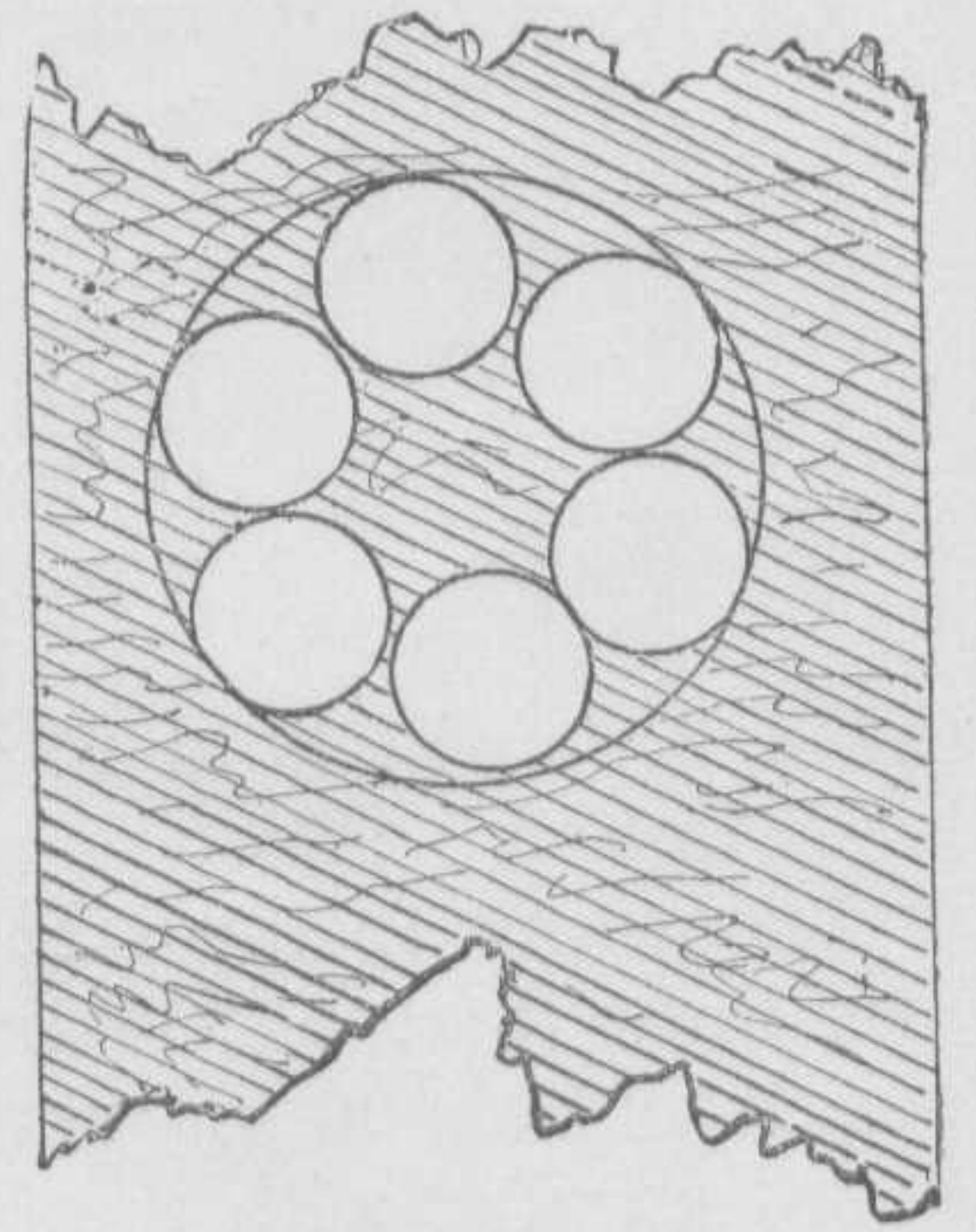
Be careful in the doing of this, as the two holes must be exactly opposite for the screw to pass through. You ought to have two bits of wood left after cutting the legs and cross-pieces. Take one of these bits and put behind the front board on its two inch side and about three inches to the right of the left leg and parallel with the leg. It should just clear the hole. Fasten securely, so that it will cross the joint *A*. It will serve as a brace, and also give a level bearing for the wooden nut which comes with the screw and is wound on the end of screw after it passes through the two holes.

Your vise as it is will work all right for small pieces, but if you have a large article to hold, the loose board *b* will not keep its parallel position, for the thickness of the object you have in above will throw out the top end, and the lower end will of course swing in. To remedy this and make your vise adjustable to work of any size, you must do one more thing:

A little to the right of leg, and one inch from the lower edge of the fixed upright, cut a slot two inches high and one inch wide; make a corresponding hole in the loose upright.

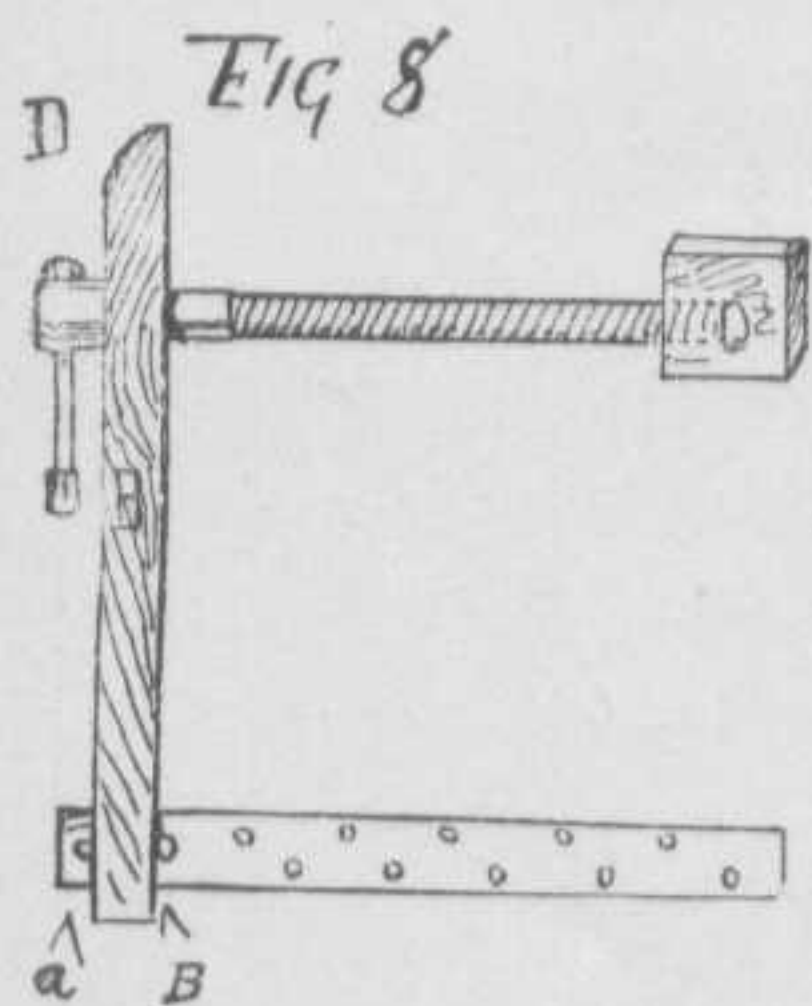
Take a strip of board two feet long, two inches

Fig 7





wide, and one inch thick. On a line drawn lengthwise through the middle measure one inch from end and mark; then two inches from that point on same line make a second mark; at both those points bore holes with half-inch bit and fit in a peg at each hole.



The pegs will be one and one half inches apart.

Then at intervals of one inch bore two alternate rows of holes with half-inch bit, as far as the length of the strip allows. Run this strip through the slot in loose board as in *fig 8*, and through the corresponding slot in upright put a peg in *a* in front of loose board and a peg in *b* behind loose board; these pegs will hold the strip firm in the slot in the loose board.

According to the size of the object to be held in use, draw the loose board toward you and put third peg into hole at proper distance to keep the loose board parallel with the fixed upright.

You see by having holes enough in the strip you can adjust the vise to any size.

Of course you is not needed in small work.

If you look closely at *fig 6* you will find that there is still one thing unexplained: the rows of holes in the front board.

When you have some long piece of work in your vise you will find it troublesome to keep it level; if you have a number of holes bored in the front of bench, with a good peg to fit, by changing the peg according to the height desired, you can raise the right end of your piece of work to the right level.

A plain hook is a desirable addition to the workbench: its use is to hold a board when you wish to plane the surface. It is adjustable according to the thickness of the board, and should be set in and screwed on to the bench at point *f*. It will cost at hardware store about seventy-five cents.

NOTE. — In *fig. 1* (the sawhorse) one leg is drawn in dotted lines to show the way the leg is fitted into the hole, and the right slant. In *fig. 6* the broken space in front board is to show the position of brace on right leg.

## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

### III.

#### A GOOD BREAKFAST.

THE secret of a good day is a good morning, and a good morning always begins the night before. So many things toward a good start the coming day can be done the hour before you retire. The coffee is not to be ground or the teakettle filled to spoil over night, as I told you, but the dining-room can be swept, the table set with silver and china, the clean mosquito netting thrown over it, to keep off dust, and the fire laid for kindling if necessary. Night too is the time for little personal cares which thriftless people hurry through on rising, with breakfast duties waiting, and are apt to slight accordingly. Then is the time to wash neck, ears, arms and armpits daily with soap and hot water, for one perspires more when active, and no care is too nice to prevent odors from clinging about dress and person, which are the vulgar but unnecessary consequence of housework. At night brush the hair thoroughly, and wash it once a week; rub your slippers with glycerine polish, baste the fresh ruffle in your gown, trim your fingernails and sew on the loose button. It will be a relief to find your dress

and belongings ready to slip into next morning. If you do not bathe daily, and are in more or less dust, thorough neatness demands washing the feet nightly as much as washing the neck, and a fresh pair of stockings every day will be necessary for our nice housekeeper, even if she washes them herself. There is the comfort of doing one's own work, that no Bridget can grumble over the quantity of clean towels and toilet-covers, hose and pillow-cases found desirable.

Now for this hurry of early breakfast, which is the bugbear of the day; you must strive and practise till it is a machine matter down to the smallest point. Set the water from the faucet running the first thing, draw on sweeping-cap and gloves for stove-work, and let me whisper one secret: rub a little glycerine or sweet oil on your cheeks to prevent burning them over the fire. Fill the teakettle, and have your frying-pan and griddles on before lighting the fire, as I told you, that they may catch every bit of heat, open the dampers five minutes till the stove roars, then close the oven damper to throw the heat to the top of the stove, where it is needed instead of up chimney. If you want an early breakfast, you must have potatoes and cracked wheat or oatmeal boiled the day before; then coffee can be made, beefsteak,



cooked, potatoes stewed or fried in American style, the mush steamed or fried brown, and griddle cakes begun or eggs boiled, in fifteen minutes from the time you come down. Time yourself by the clock, day after day, until you can do this. You, Anna Maria, are supposed to bring quicker brains and more natural skill to your work than Bridget, and her slovenly, dragging ways are as disgraceful to you as her bad grammar, or tawdry Sunday bonnet would be.

No attitudinizing, no fine lady affectations over the griddles and saucepans; instead, cultivate the fine character which acts up to the need of the hour swiftly, promptly, but with the quiet and certainty which keeps briskness from turning into vulgar hurry. Your object is to send the family off to school and business with a good start and good breakfast, which gives them cheer and strength to face the day, a capital better than money for people who have real work to do in the world. I have heard a girl of sixteen say: "Father isn't particular, and I get what's easiest for breakfast, bread and butter and tea, and a slice of ham, a little cold meat for lunch, and whatever happens for dinner, and he never says a word;" and I have seen the father looking worn and uncomplaining, going from his comfortable breakfast, and ill-kept house, to his day's work, or the young clerk, her brother, going to the office to work indoors all day, shut from the fresh air and sunshine which feed one, growing paler and thinner month after month, without the support of good, warm relishing food, which the girl is too careless to prepare, or to see that the servant prepares.

I want to speak seriously about this matter of providing *good* food, as it is something on which our brains, morals and tempers depend, as well as our bodily strength. Good food is not rich food, still less is it the "tolerable" fare which is just undercooked and flavorless enough to tax digestion more than it ought, and so rob brain and spirits of their lightness. Good food helps one to do the most work with least fatigue, to study with the brightest, quick thought. It is the best of everything cooked in the nicest possible way, and with pleasant variety. It may be simple fare, but the potatoes will be the whitest and dryest, "selected," as marketmen say; the steak, whether sirloin or "chuck," will be freshly cut, bright and clean; the butter faultless even if you go without it at dinner as the French do, for the sake of having the best, and the coffee, flour and meal in your storeroom will be the best of their kind. Then it will be as delicately cooked and neatly served as at the most expensive restaurant, if not better; for your ambition will be to have as many niceties as possible at home which are not known abroad.

It has been quite the fashion to say that the French habit of taking a roll and cup of coffee on rising, with a substantial breakfast at noon, was the

only correct way, but those who thought so discover that different climates and habits require difference of food. So the bright girl who pines to change the order of her mother's house, and plans for breakfast of *café-au-lait* and rolls, like that at French pensions, or of toast and marmalade, because that is the correct thing in English novels, is reminded that the people who find such fare sufficient, dined about seven in the evening, and had some rusk and wine, or bread and cheese, or ices before they went to bed at midnight or later. Busy Americans who took supper at five, or dinner at six, and went to bed at ten, require the comfortable breakfast common at our tables. Honor your own customs as natural and fit for the country and society when found; for highbred foreigners easily learn to prefer the cheery American breakfast with all the steak, broiled chicken, muffins, maple syrup, apple butter, and the rest of the nice country variety. We will take the standard breakfast, Anna Maria, and see how it can be improved.

Except in very cold weather, fruit is always acceptable, and should be your table decoration instead of flowers, which refined taste begins to find out of place among meats and vegetables. "Arranging the flowers for the table" is one of the genteel young lady's duties which we can gratefully dispense with. Have them in the room, on the mantel or brackets, where their odor will not mingle with that of coffee and broiled meats. Nice mellow apples, grapes and oranges are in season most of the year, and, dressed with leaves, are the most tempting centre piece for the table. The fruit can be arranged the night before and left in a cool place, the same leaves placed in water after each meal, lasting a week. The next dish is usually wheat, hominy or oatmeal, with sugar and milk. Wheat is better for general use, as it has more phosphates for the brain and bones, and is less oily than oatmeal, and better for the complexion. The very best way to eat either is with meats and gravies as a vegetable; but the food which made Cæsar's legions strong, deserves to be well cooked. The "steam-cooked" and "prepared" wheat is by no means as good as the plainer sort which any good miller can furnish, so it has been carefully washed and dried before grinding, the thinnest outer scale taken off and the grain cracked or cut to be as little floury as possible. The "crushed white wheat" is a good staple article. Cook it the afternoon before, in the farina boiler, or in a tin pail set on a trivet in a kettle half full of boiling water. To a quart of fresh boiling water in the pail add eight large tablespoonfuls of wheat, dropping it in gently, and letting it mingle without stirring, and a teaspoonful of salt. This will be very thin and watery at first, but will swell in cooking. Cover, and set a few moments over the hot fire till the water in both kettles boils hard, then set back where it will simmer half an hour, the last ten minutes with the cover off the pail to let the water evaporate. The grains should be swelled and distinct as rice. Watch to see that it does not



burn, and do not stir it, as that makes it pasty. If you like, add half a cup of raisins or currants which have been soaking half an hour in a warm place, when the wheat begins to boil. This is nice with the sugar and milk. When done, pour into a dish; if nicely cooked, the wheat comes out in a mass, leaving the kettle quite clean. Next morning all you have to do is to set the dish into a steamer over boiling water and heat through to make it ready for table, unless you like it fried in thick slices on a large, very hot griddle, with just enough butter or nice fat to keep it from sticking; or shaped between the bowls of two large spoons into balls, dipped in beaten egg and fried brown and dry in a kettle of fat for queen fritters; or stirred with three eggs, minced beef, pepper, and a half cup of gravy, and baked in a pudding-pan, for a side dish.

Now for your cold boiled potatoes, which you may serve stewed or fried in butter or nice fat on the big griddle, so that each piece will brown well, instead of jumbling them into the frying-pan to be half scorched and half sodden in the common sorry fashion. For frying this way, you may use rather dull-looking potatoes, which will fry dry and light, but it takes white mealy ones to make a nice dish stewed. Don't try Saratoga potatoes till you can cook plain fried ones well that have been boiled beforehand, taking them up with the griddle-cake turner to keep each piece whole, browning each like a pancake, peppering and salting over the fire, so that the flavor will cook into them, and arranging neatly on a hot platter in overlapping rows, when you will find potatoes *à l'Américaine* quite as satisfactory as any of the French ways.

But I will not give recipes, save a hint or two on points where many questions have been asked, as about the cooking of wheaten grits. These chapters are not about cookery, but housekeeping, and it will be more help to give a list of simple things for breakfast which you can learn to cook from the many pleasant books on the subject. For every second-rate housekeeper I ever knew, was wont to declare that the hardest thing in her life was to tell what to get for three meals a day. Now let us lay this bugbear once and forever, Anna Maria, by finding out what there is to have if we can get it, what we can have, and what we will choose to have for two weeks ahead. I will give you a list made by a real housekeeper for her own use, and you can strike out all that you cannot get; write down your list of supplies, and make up your memorandum of what you will have for breakfast each day for the week or fortnight to come. It will be an evening's fun making out your list with

the help of the family whose tastes are to be consulted in the matter. The dishes below are specially served for breakfast in a good style of living.

#### WHAT SHALL WE HAVE FOR BREAKFAST?

Fresh fruits in season, raw tomatoes sliced, radishes, salads, cresses.

Farina, wheaten grits, oatmeal, pearl hominy, samp, and all these fried. Boiled rice and corn mush are only served at breakfast fried in slices.

Dry toast, cream, and egg toast, corn muffins, graham or wheat muffins (vulgarly called gems), queen fritters, corn bread, brown biscuits, flannel cakes, corn or wheatmeal griddle cakes, buckwheat in season, rice, hominy, and oatmeal cakes, and, best of all, Adirondack pancakes.

Baked potatoes, Saratoga, lyonnaise, stewed, fried, with gravy; baked sweet potatoes.

Sweet corn fritters in season, carrot-mince, oyster plant and parsnips, parsnip fritters, vegetable hash, fried squash, baked beans, fried apples.

Beefsteak, veal cutlets, mutton chops, venison steak in season, salmon steak.

Fresh fish, fried and broiled, fish-cakes, oyster fritters, clam fritters, fish with cream, omelets, dropped eggs, hash, on toast and with eggs, broiled chicken, Maryland chicken, lamb tenderloins, kidneys with vegetables, calf's brains with tomato sauce, giblet toast, potted squirrel, Oxford sausage, turkey or chicken hash, potted meats; beef jelly for summer breakfasts.

Apple, peach or quince butter, wild raspberry jam, cider apple sauce, baked pears and apples, honey, maple syrup, white sugar syrup, melon syrup. Coffee, cocoa, chocolate with vanilla or cinnamon flavor, dandelion coffee, and root beer or lemonade tea, the three last in spring and summer.

Few of the above are expensive dishes even for plain families, and I advise you to make it a year's study to learn how to cook them. Any family of five spending eight dollars to ten dollars a week on marketing can afford such a bill of fare, if there is a careful little housekeeper and clever cook at the helm. You will hear this questioned, but I have the bills of a city family to show for it, and in many parts of the country things are much cheaper. You can't afford such fare with a common servant at any such price, for it takes a clever person to spend money well. Perhaps you will like to spend an evening with me over a lady's accounts, and see what part they play in nice housekeeping.



## HEALTH AND STRENGTH PAPERS.

BY PROFESSOR D. A. SARGENT.

## III.

## FREE EXERCISES.

HAVING considered some of the theories upon which true strength depends, let us put what we have learned into practise.

We saw that the first thing necessary was to preserve an erect position, if we would give our heart and lungs a fair chance. "How shall we do this," you ask, when all of our duties at home and at school are in front of us and require us to bend forward?" In the first place, never stand or sit for a long time with your coat or jacket buttoned tight around you.

Never lean over a desk or table where the edge comes against your stomach or chest.

Never sit in a chair or upon a stool where you cannot touch your feet to the floor or a foot-rest.

If your writing-desk or study-table does not slant forward enough to enable you to see clearly without leaning over, then place your paper or book on a writing tablet, which you can purchase at any stationer's for twenty-five or fifty cents, and by blocking it up with books, have a slant that suits you.

If circumstances compel you to submit to these inconveniences (and circumstances will often make us do some very disagreeable things) then you must, from time to time, fortify yourself against the danger that threatens you. If at school never lose an opportunity to get out into the fresh air. If you do not feel disposed to

ought to, then throw back your shoulders, stand erect, and fill the lungs to the utmost ten or a dozen times with pure fresh air.

When at home, go to your room or some other retired place, take off your coat and vest, slip your suspenders from the shoulders, remove collar and cuffs, and, unless it is very cold, open the window. Now you are ready for exercise.

*Position I.* Stand with heels together, head back, and arms bent at right angles in front, with elbows shoulder high. (See fig. 1.)

*Movement:* From this position bring the arms forcibly backward, keeping them bent at right angles, with forearms perpendicular to the floor.

*Position II.* Stand with heels together, both arms held rigidly straight above the head, with palms forward. (See fig. 2.)

*Movement:* Bring the arms down in front, keeping them straight all the time, until the fingers touch the toes, then return the arms to position over head. I see you are inclined to bend your knees. This will never do, you must keep the legs straight if you would strengthen the muscles that hold your body erect.

*Position III.* Stand with heels together, head erect, and hands held close to sides, with thumbs forward. (See fig. 3.)

*Movement:* Bring the arms up from the sides until the backs of the hands touch above the head, thumbs still forward, then return to position. Keep the arms rigidly straight, and, if possible, make them touch the sides of the head. If you bend the arms at the elbows (as you will want to do), it will be difficult to attain the object of this movement. It is to set up the frame, and keep you from having stooping shoulders.

*Position IV.* Stand with heels together, and hands in front of you, backs touching. (See fig. 4.)

*Movement:* Now raise the arms directly in front

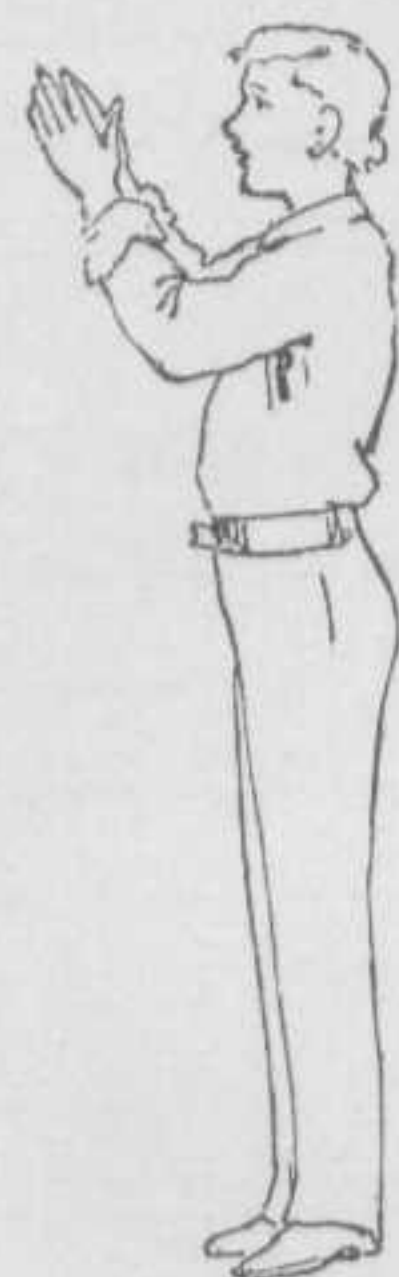


Fig. 1.

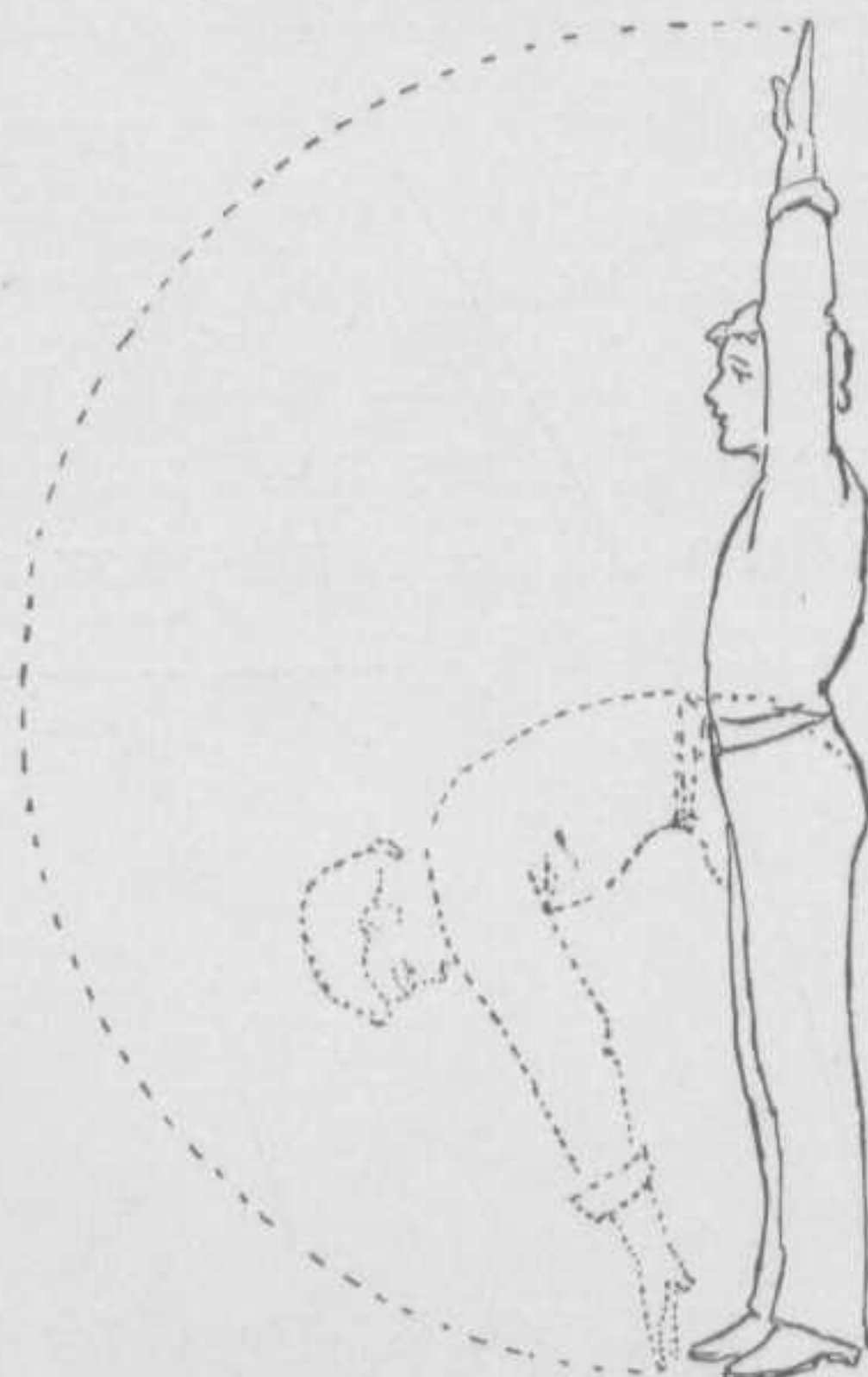


Fig. 2.

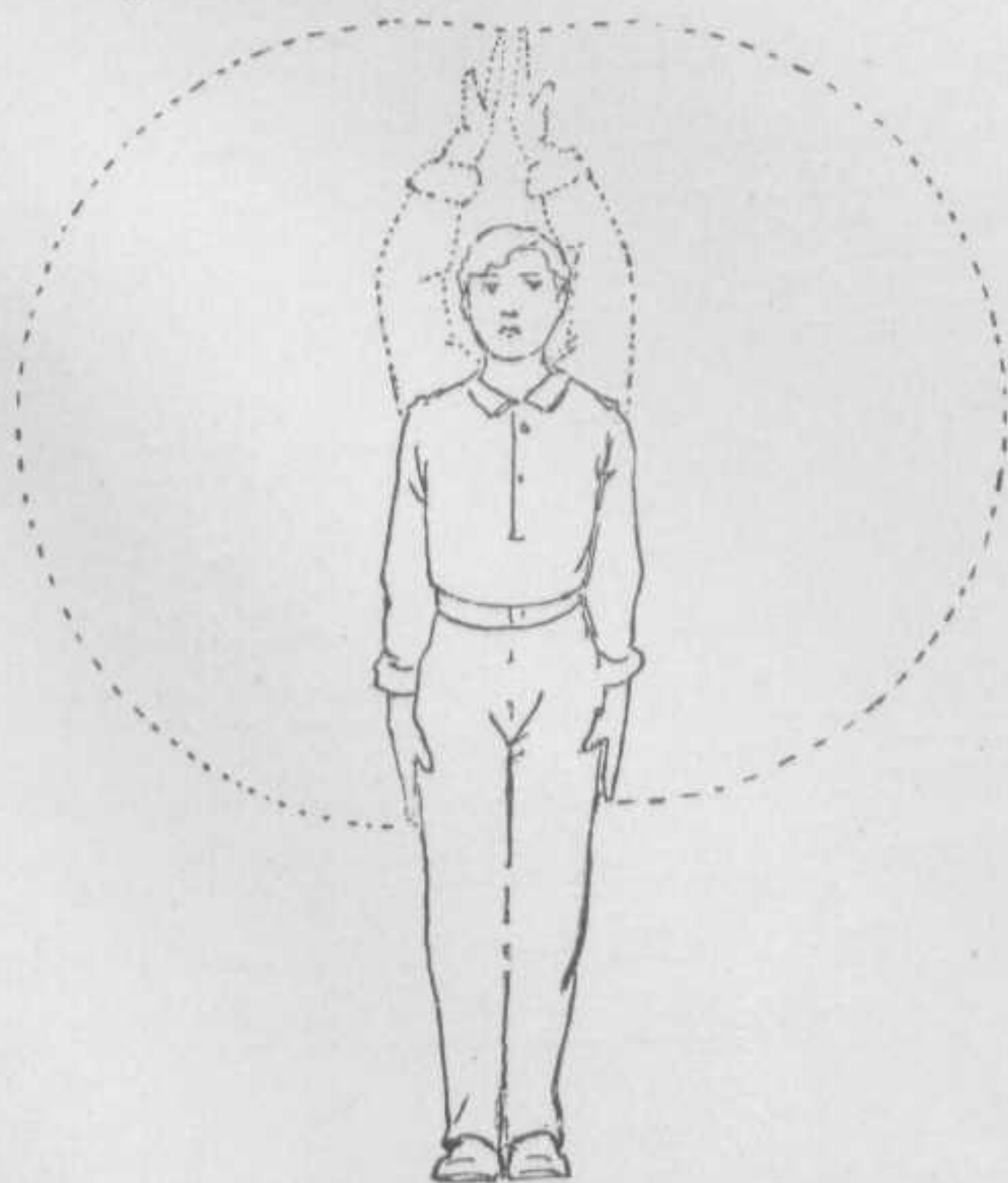


Fig. 3.

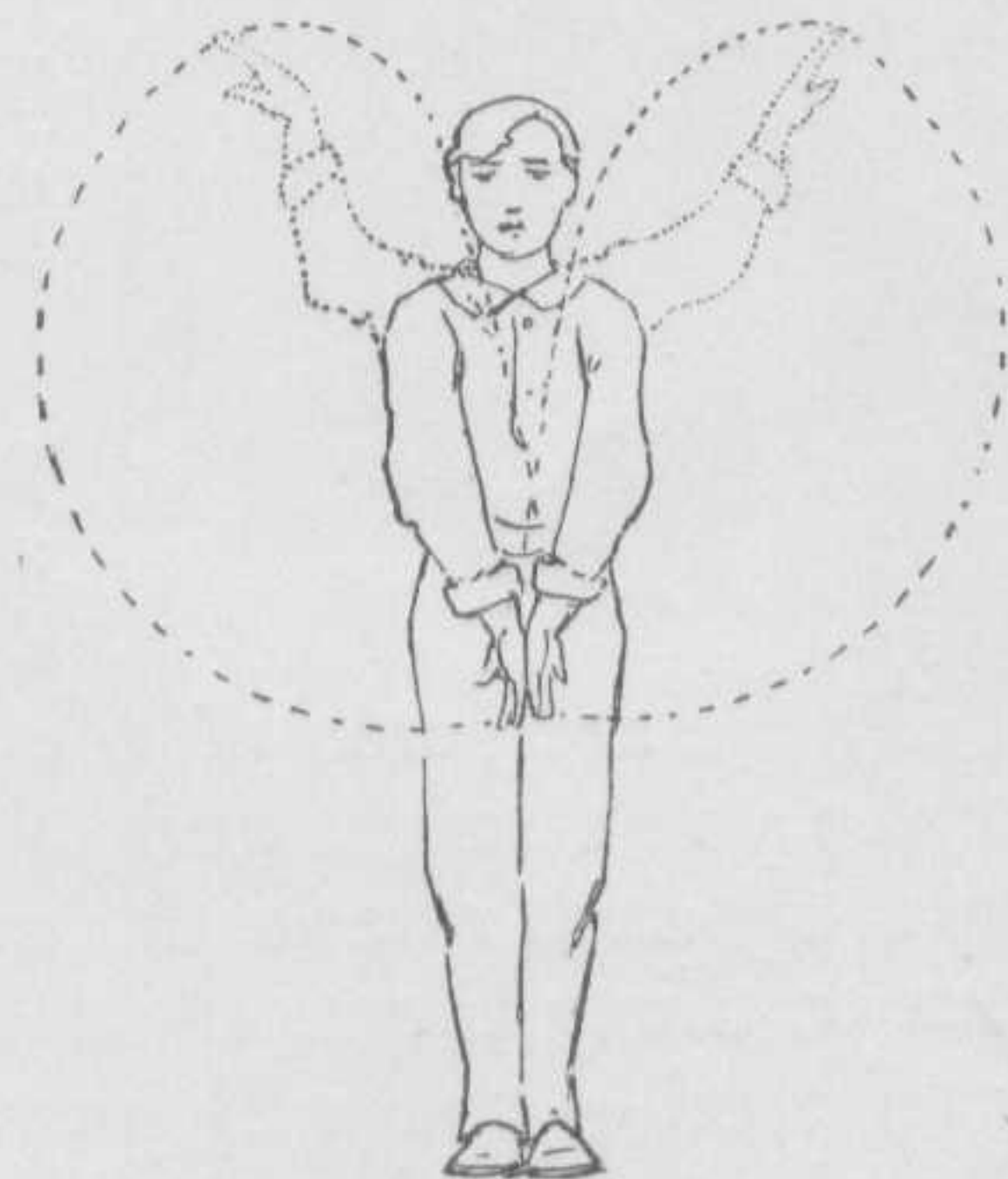


Fig. 4.



Fig. 5.

run and jump with the rest of the boys, and you



of you, keeping them straight throughout, and holding the backs of the hands together as long as possible. As soon as they begin to separate, sweep the arms around in a circle backward, and bring them to position again in front of the body. In making this movement, draw in a full breath as the arms are raised upward, and let it out as soon as the movement is completed. This exercise will tend to enlarge your lower chest, and enable you to take long deep breaths, upon which your power to make a great effort at anything will very much depend.

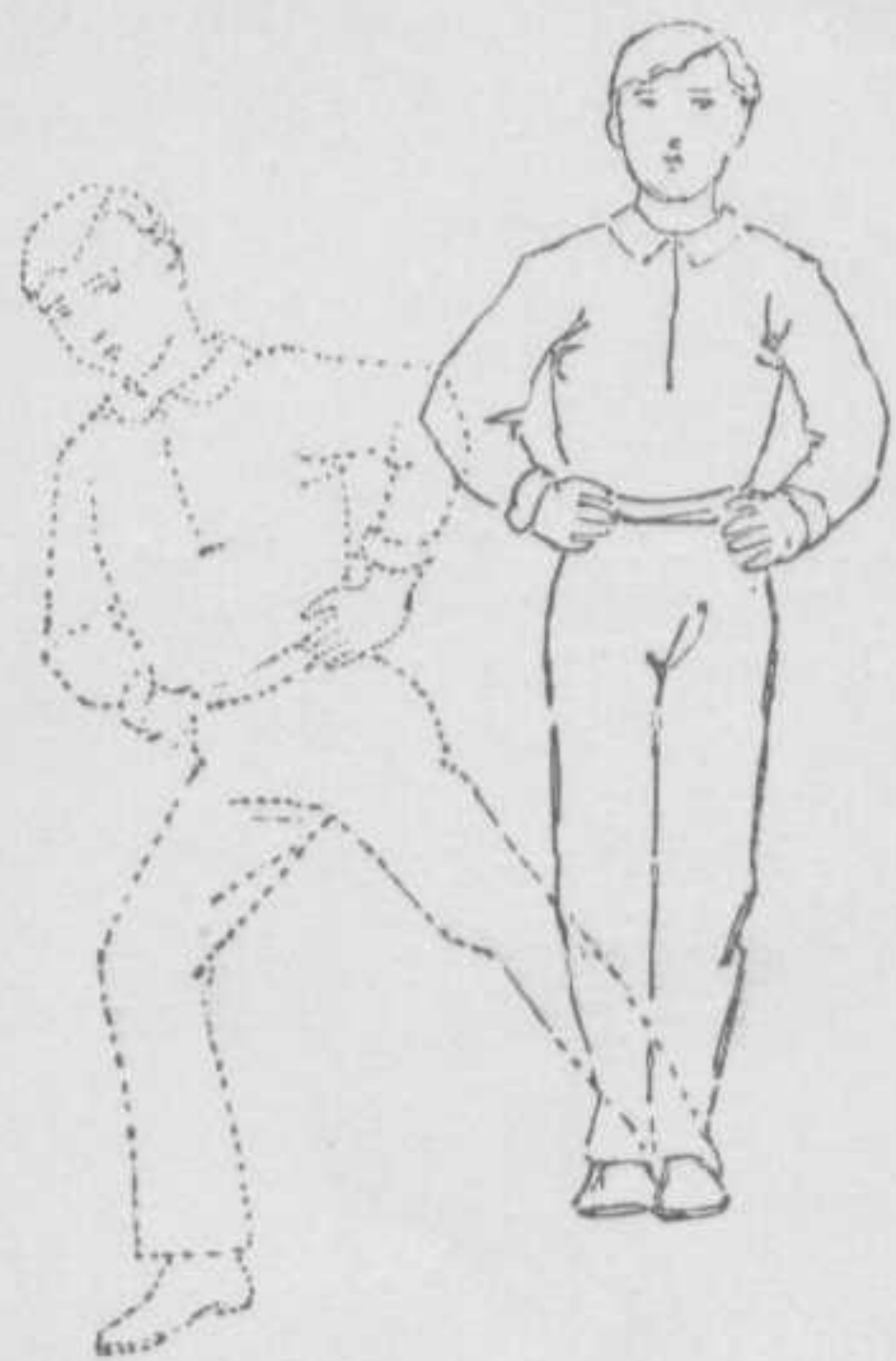


Fig. 6

These are some of the exercises best calculated to make you straight and give you a manly bearing. If you try each one in the manner just described, from ten to thirty times, twice a day, morning and evening preferred—you will never be round-shouldered or flat-chested, unless you were born so. Now let us try a few exercises for the legs.

*Position v.* Stand on your door-sill, touching the balls of the feet only. Grasp the sides of the door-frame with the hands, to maintain a balance. (See fig. 5.)

*Movement:* Rise on your toes fifty to one hundred times every morning. By so doing, you will

strengthen the muscles of the leg below the knee, and soon acquire an easy, elastic step in walking.

*Position vi.* Stand erect with heels together, and hands resting on the hips.

*Movement:* Step diagonally forward about thirty inches with the right leg landing on the ball of the right foot, then spring back to place without touching the foot again to the floor.

In order to make this movement effectual, keep the left leg rigidly straight, and do not raise the left heel from the floor. The same exercise may be taken with the left leg, keeping the right leg straight. (See fig. 6.) As the legs must necessarily be used considerably throughout the day in sustaining the weight of the body, if not in moving about, it is better to take this exercise in the morning. Step forward on each leg as just described from twenty to sixty times. Three times with one, then three times with the other, and so on until the prescribed numbers have been taken.

If you have performed these exercises with energy and vigor you must be very warm by this time, if not in a perspiration. As soon as you are through, close the window and begin to percuss the body, legs and arms with the hands. After continuing this for a few minutes, rub yourself down with a dry towel if the body is still moist with perspiration; then put on your clothes and move around slowly for a while, and you will be ready for anything—a good night's rest, or a hearty meal, if it is meal time.

## WHAT TO DO ABOUT IT.

SUE. "I saw in the WIDE AWAKE P. O. for April, a letter from Sarah Burgess, in which she says, 'I find it hard to keep from saying I guess.' Will you tell me if it is incorrect to use the word guess?" Yes, as frequently used instead of "I think" so and so. To guess means to conjecture, at haphazard more or less, not to give your belief on the best grounds, which you intend generally in saying you guess. You guess when you know nothing at all about a matter; you think so when you have reasons for it.

M. B. "Could you tell me the address of the whole Cabinet, so that I could get their autographs?" Not for any consideration, for, as all well informed people do, I regard the whole business of soliciting autographs as a nuisance and impertinence. The Cabinet of the United States, and all other public men, politicians, authors, divines, are far too busy men to be annoyed by the requests of entire strangers for their autographs. The applications of this kind are one of the worst inflictions public personages suffer, and the WIDE AWAKE will have no hand in encouraging a

practise in such bad taste. If you can get an autograph in any legitimate way, by exchange or gift, from some one who has a letter from a notable person, take it, but don't make yourself one of the five thousand impertinents who exhaust the time and temper of very busy men by senseless requests they have no business to make. That the practise is so wide among ignorant, unthinking people, does not make it becoming or allowable.

M. A. S. "Where can I get a work on pen and ink drawing suitable for a beginner? I want to take drawing in connection with writing lessons at school this winter." Write to D. T. Ames, of the *Penman's Art Journal*, 205 Broadway, New York, and read *Ruskin's Notes on Drawing*. You did not say whether you wanted to learn merely to do ornamental flourishing, or to make pen and ink sketches, but the works above will guide you.

A. B. C. 1. "Why are stories of events which occurred before Magna Charta was dreamed of, called Magna Charta stories?" Because they all



belong to the same noble history of struggles of various nations for their liberties, of which Magna Charta was the greatest victory.

2. "In speaking of collections, you advise for one a collection of engravings, good, bad and indifferent. Of what use, of what value, are the bad and indifferent ones?" Juvenile collections are generally made for the sake of illustrating a country, class of persons, or a period. A boy will gather pictures of public men, of presidents, explorers, kings or philosophers, or he will collect as many of public buildings, ships or machinery, as he can find, or scenes in foreign countries or in separate States of his own land. In such collections a scrap which is a very poor engraving in itself may be interesting to fill the gap in a series, or as giving an idea of some place or personage. I certainly would not advise you to save a poor picture when you could get a better. But in a series of New Hampshire scenery, or summer resorts, even such ordinary scraps as you send would be useful.

3. "In a certain picture, why is the young man rowing his boat stern first—because he has so heavy a load in the bow?" No; in such a case, any school-boy who uses oars knows a boat would row twice as hard stern first. The rower is probably backing out from some narrow passage or channel.

J. A. R. "What is the use of a two dollar postage stamp?" When such a stamp is used, it is on large bundles of newspapers sent to the same office, which are prepaid by publishers.

EMELINE P. I. "The June number of WIDE AWAKE, with its article on John Ruskin, deeply interested me in his works. Will you kindly give me their titles, and tell me which are best suited for a young girl of sixteen, also where I can get the cheapest editions, and about what I must expect to pay for them?"

The works by which Mr. Ruskin became known were his *Modern Painters* in seven volumes, which it will be time enough for you to read four years from now. Beside his *Seven Lamps of Architecture* and *Stones of Venice* he has written many later books which treat less of art than of men's duties to each other, duties of rich men, working men, women and children, books with arresting, significant titles: *Fors Clavigera*, *Ethics of the Dust*, *A Crown of Wild Olives* and others. For the present you will find most benefit in his *Notes on Drawing*, a thin volume which will teach you much about nature and methods of work, though you know and care nothing for art, and in *Sesame and Lilies*, which has beautiful counsel for girls. Read these slowly, learn passages by heart, write things which please you in a blank book; keep them by you to read a passage now and then, and they will do you more good than to sit down to read the entire series of Ruskin's Works in twenty-six volumes. Buy the English editions of the volumes you want at a good second-hand bookstore, where unused books can always be bought at reduced prices. You should get both works recommended for \$2.50 in all.

2. "Which is the best college for girls?" Home, by all means, if you are in reach of fairly good teachers, as from your address you must be. The most highly educated women of to-day were not trained in colleges, but by private teachers, under the eye of sagacious mothers and fathers. The finest ladies in society do not send their daughters away from home to the mixed companionship of large boarding-schools and the independence of girls' colleges, but have them trained at home by careful governesses and masters, or in private schools where they are at home daily. Boarding-schools and colleges are for those who lack home advantages.

3. "When should I begin singing lessons?" A child should begin to sing carefully and properly as soon as it can sing at all. You cannot begin too soon, and have lost much time already.

4. "Is it proper to take a gentleman's arm in day-time?" Not unless you are too much an invalid to walk easily alone, or there is a dense crowd to pass through in which you are in danger of being separated. These are the only cases when it is necessary, and therefore the only ones where it is allowable to take the arm of an escort by day.

5. "What books should I read to best mould my character?" There are a few books I would advise every girl to read once a year. One is *The Intellectual Life*, by Philip Gilbert Hamerton; another is *Vilette*, by Charlotte Brontë; a third is that lovely old-fashioned, plain-speaking, but most high-minded and lady-like of all books, *The Listener*, by Caroline Opie. Read Miss Edgeworth's novels, get the *Life of Mrs. Delany* to learn what an accomplished woman of the last century could be, and then read that incomparable memoir of Mrs. Susan Ripley, George Ripley's mother, who used to hear schoolboys' lessons in logic and Latin while shelling peas under the shade of the elms on the grass. Miss Martineau's *Autobiography*, and the *Journal of Caroline Fox* lately issued, will be good books for you. Also read works of real adventure and of practical art like house furnishing, embroidery and decoration. Study the best works on decorative art, Mrs. Bury Palliser's *Book of Lace*, and learn to tell the different laces accurately; take Prime's *Pottery and Porcelain*, and learn the "marks" of china; study botany, gardening, visit hot houses and learn to tell the orchids apart, and the ferns. Tell the truth, do your duty, and quit thinking intensely of yourself and how to mould your own character. Charles Kingsley says of one of his noblest heroes that "he never thought about thinking, or felt about feeling," and that the narrowness of his Information was counterbalanced by the depth and breadth and healthiness of his Education. There is something for you to take to heart, and not only you, but many like you, who are fidgety about the cubits of their mental stature. Neither much reading or study or meditation will ever mould brains or character without ten times as much doing something useful and skilful with all your heart and all your ability.



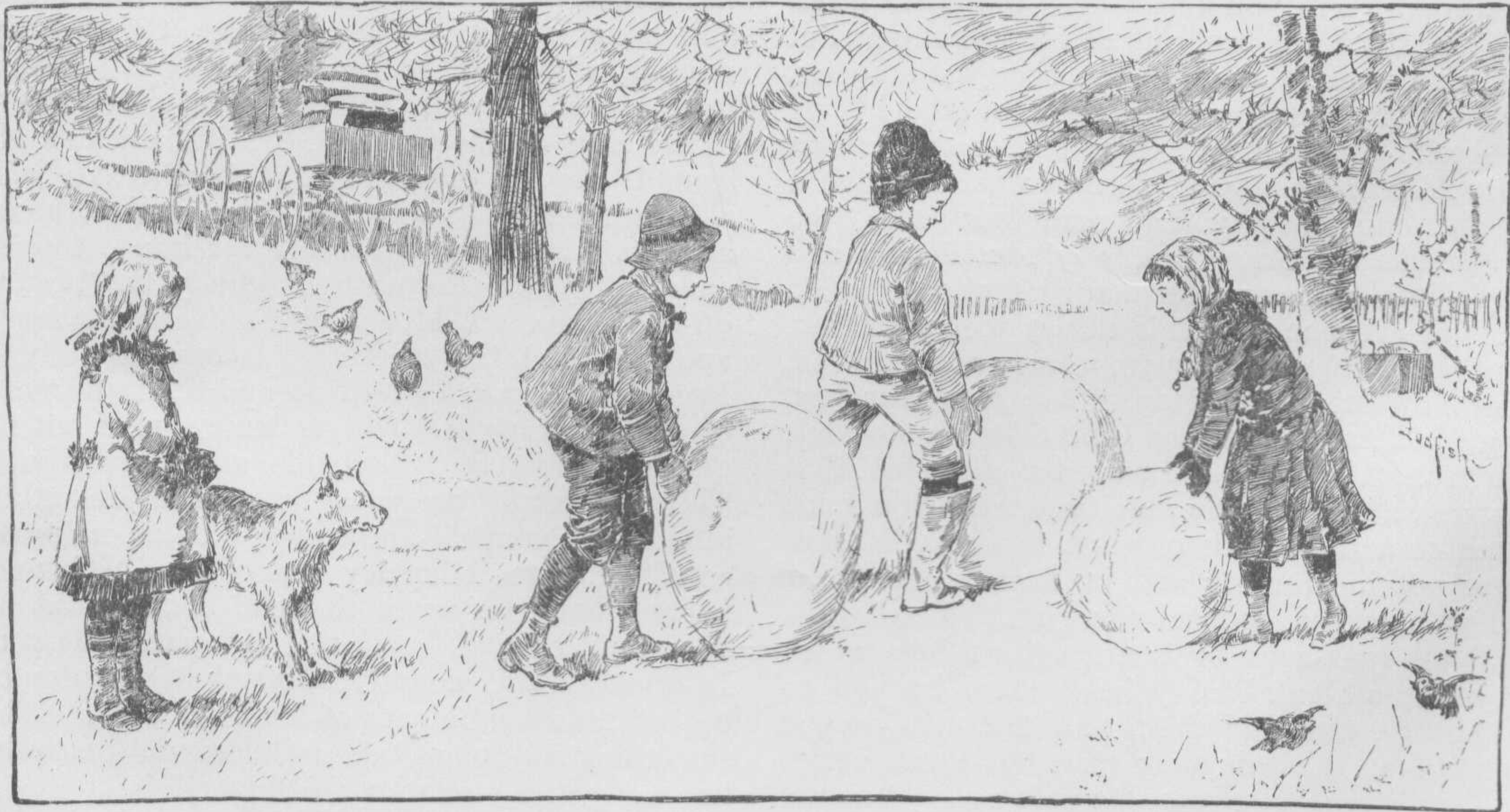
G. McC. 1. "I should like to know how to make a lawn look pretty. I think it would be nice to have little paths running through the grass." No; little paths, which good gardeners will tell you, give a cut-up look to grounds. A lawn or grass plot should be a sheet of beautiful, short, velvety green, with a wide path and shrubbery or flower-beds on its borders. Fine grass, as all artists will tell you, is one of the most beautiful things in nature; more refreshing than flowers, or landscapes without it. Grass should be well fertilized each fall, and fresh seed sown on bare places when it has been trodden or burnt out by the sun. Through summer it is to be cut with a lawn mower and sickle once in ten days, and sprinkled evenings in dry weather to keep it fresh. Frequent wetting makes the thick sward we like to see. Sow white clover and vernal grass with other lawn grass, the clover for the pearly embroidery of its white blossoms, most beautiful with the fresh green—the vernal grass for its fragrance in spring and fall. In shady corners plant roots of bluebells, lilies of the valley, violets, and the lovely Star of Bethlehem,

which will run in the grass and make sweet surprises of bloom. Let the daisies too, flourish by the fence, and near trees, for their foamy white against the foliage cannot be spared, and the gardeners in large parks plant them out in wide clumps for graceful effect.

2. "I want to ask what you have to do when you belong to the C. Y. F. R. U." Send three three-cent stamps to the Recording Secretary, Miss Kate Kimball, Plainfield, N. J., and you will receive the circular explaining the work of the Union. It designs to join people all over the country in a course of regular reading which will give them entertainment and information on a variety of subjects, and will lead them to read and study other books. Some people will study with more interest when they feel that a great many others are studying with them.

I am very glad to see that correspondents have so quickly taken the sense of my request, and no longer fill their first pages with apologies for sending questions. Here is a rule of good breeding and policy: never make an apology unless the occasion obliges you to.

THE WISE BLACKBIRD.



THE FIRST FUN OF THE SEASON.





## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### IV.

GILBERT WHITE.

IF maps should ever be made with reference to the celebrity of places, the name of Selborne will be there in capital letters. It is an out-of-the-way parish in Hampshire County, England (often written Hants), about fifty miles southwest of London, and not being of any importance on account of business, nor on any line of railroad, there is nothing in particular to take strangers there except that it *is* Selborne, which is reason enough for those who know about it. Primitive and secluded as it is, the one small volume written about it "has held its own as a standard book for a hundred years," as Frank Buckland says, "and will probably be as fresh as ever a hundred years hence."

If Gilbert White, the author of that work, could awaken from his long sleep in the churchyard, he would be as much puzzled as Rip Van Winkle after his nap; not because things had changed so—for in Selborne parish things have not much changed; nor because he was "so soon forgot" when he was gone, as poor Rip lamented; but to find himself so well remembered, and his modest book a classic.

Of his personal history there is not much to tell, for nothing special happened to him. In Selborne he was born (July 18, 1720), from it he was absent long enough to acquire his education and take his degree at Oxford at the age of twenty-six; after which he appears to have gone back to his birthplace; and there he lived as curate, and there he died, unmarried, June 26, 1793.

He was a good deal shut away from the world; and the only roads from the parish being in his time "dreadful lanes," he could not, according to his biographer, "have had much society. . . . There were few or no visitors arriving and departing; the only arrivals and departures that White could notice were

those that came through the air, i. e., birds, and of his feathered parishioners, he has indeed given us ample reports. . . . In fact, Selborne was a big bird cage in which White was enclosed even more than the birds." From a child he was fond of studying everything that related to natural history; not only watching and noting down for himself all about the things in his vicinity, birds, the smaller animals and insects, but plants, minerals, and different kinds of soil. It was a matter of regret to him that he had no neighbor with similar tastes; but perhaps if he had not been so much alone, he would not have done such minute and accurate work as he did; so that what was his loss was after all the world's gain.

His observations extended over a period of about fifty-five years, and most of them in that one parish, although he occasionally took little trips into those near by. The territory included in Selborne had an outline, he said, of about thirty miles; a portion of it being occupied by a pond, and thirteen miles of it was what was once a royal forest, though there was not a standing tree left on it. Every part of this region, with its hanging woods and lonely ravines, its cliffs and sheep-downs, he must have traversed on foot many times; with most of it he was as familiar as with his own garden. You may fancy him, a small, active man in clergyman's clothes, with a stout staff in his hand, going off on one of his solitary walks, or sitting perfectly still by the half-hour in some wild spot watching a shy bird to make himself sure of some point about its habits; then coming home, and in his study writing down the observations of the day on sheets of paper, some of which, just as he left them, are still carefully preserved.

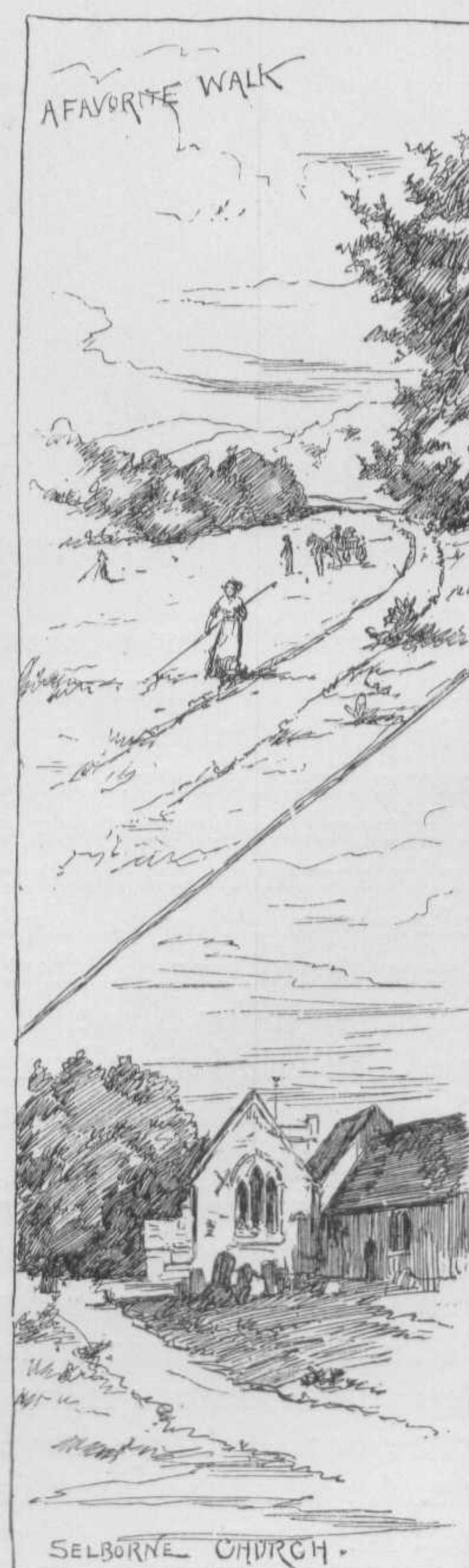
In this way his blameless life was spent. One old woman who was a girl of eleven when he died, recollects him as "a quiet old gentleman with very old-fashioned sayings:" and somebody else in the parish remembers to have heard him described as "a little,



thin, upright man ;” and he is presumed to have worn “a clerical wig, knee-breeches and buckles ;” and when he was out walking he wore a hat with a broad brim turning up all around, such as we see in some of the portraits of Dr. Johnson ; and he sometimes carried for a walking stick a malacca cane which is still kept in the old house where he lived. Such a romantic house it is, with its huge, tall chimneys and steep roof where the swallows love to congregate, its pretty gables, and windows like loopholes cut out of the mass of ivy that clothes the walls. A man might

most of whom were hop-pickers, spinners and day-laborers — simple folk, who looked up to their curate with reverence, but wondered what he could see in the country around that he should always be trudging off by himself ; but if they had been told that what he wrote was of such great importance that he was one day to be called “The Father of English Natural History,” they would not have been any wiser than they were before.

The curate, however, had two congenial friends somewhere else : Thomas Pennant, author of *British*



GILBERT WHITE.

have been very happy there and he was, with his parlor cat, and some nephews and nieces who came to visit him now and then, and constantly he had the enjoyment that came from his beloved pursuits ; and as Buckland, an equally ardent naturalist, says, “If we, like White, love animals (commonly called dumb because we cannot understand their language), we shall never experience the feeling of solitude.”

Selborne had a village of “one single straggling street, three quarters of a mile in length in a sheltered vale,” and a common where under a great oak used to gather in the evening the rustic inhabitants,

Zoölogy, and Daines Barrington, to whom he wrote letters ; and as these are made into a volume just as he addressed them, their names will always go right along in his good company. The book entitled *The Natural History of Selborne* (with a supplement of the antiquities of the same place, which is not of so general interest), has been the delight of all lovers of such subjects from that day to this ; and also of a still larger class who feel the charm there is about his singularly clear and beautiful style.

I don't see how any young person can help liking his accounts of birds and insects, mixed in with



which are many stories about finding coins and petrifications, and hundreds of little incidents which are of interest, or ought to be. Miss Mitford said she really thought that she had read White half a dozen times, and "truth is the talisman. There is an air of reality in his descriptions which I meet with nowhere else. And we poets may talk as we will of fiction, but the gipsy is never attractive except when she borrows the garments of truth." Gilbert White believed that the world was "always ready for knowledge that comes from actual observation," and that it was better to study one's own district than to grasp too much; not to trust to what others have seen, but notice and be sure of the facts, though he said all that one person "could collect in many years would go into a very narrow compass."

He did not think anything was too trivial for his attention. One of his little items is this:

As far as I can observe, many birds that dust themselves never wash; and I once thought that those birds that wash themselves would never dust; but here I find myself mistaken.

Here is another:

Crows go in pairs the whole year round.

And another:

All the swallow kind sip their water as they sweep over the face of pools or rivers; like Virgil's bees, they drink flying. The house-swallow washes by dropping into the water as it flies.

Simple things, but it took time and sharp eyes to find them out. Again:

Birds are much influenced in their choice of food by color, for though white currants are a much sweeter fruit than red, yet they seldom touch the former till they have devoured every bunch of the latter.

Is not that a neat little fact to know? Perhaps these things may induce some girl or boy to observe, and put on record what they see; do as he did, make a list of the birds of passage of the region, or of the flowers, or study the habits of insects. He carried a list of birds in his pocket, and noticed the time when they left off singing (as most birds do leave off), and made a careful table of the facts.

Persons who are always wishing for something they have not, and thinking they could do great things if only they had opportunity, if only they lived here or lived there, or could travel, are well rebuked by the life of Gilbert White, who seldom strayed far from his parish, and by his life-work which did not reach beyond it. There are eyes that see, and eyes that do not; his belonged to the small first class; and that there are now so many keen observers as there are, we owe in part to the example of White, who, as his biographer expresses it, "is the teacher who has shown four generations how and what to observe;" and he wishes children in the public schools could be taught, and encouraged, especially in the country, to make collections of common objects, animal, vegetable and mineral. . . . Such

studies tend to sharpen the natural faculties, while they humanize the intellect."

And is it an impossible thing that we should learn to write as Gilbert White wrote?

It is a style rare for its simplicity. Charles Lamb's is choice, but carefully studied, with a singular felicity of finish. White's is a kind of writing which was done without a thought of literary effect; he just told what had occurred, and how it occurred, in the most natural language that ever was written. There is not a word that should not be there, not a word that does not fit its place and use; and you cannot imagine such a thing as that he altered one after it was written, or had an after-thought about it. It is safe to believe that there was no erasing, re-considering, revising or re-writing about his manuscript. There is his story about the bee-boy, for instance, in the sixty-ninth letter; about making rush candles; and those perfect little monographs about the chimney swallows, the swifts, the ravens and the owls, and the history of the tame tortoise and those garden hedgehogs.

Here is one passage about the migration of swallows:

If ever I saw anything like actual migration it was last Michaelmas Day. I was travelling, and out early in the morning; at first there was a vast fog; but by the time that I was yet seven or eight miles from home toward the coast, the sun broke out into a delicate, warm day. We were then on a large heath or common, and I could discern, as the mist began to break away, great numbers of swallows (*Hirundines rusticae*) clustering on the stunted shrubs and bushes as if they had roosted there all night. As soon as the air became clear and pleasant they all rose on the wing at once, and by a placid and easy flight, proceeded on southward toward the sea; after this I did not see any more flocks, only now and then a straggler.

And this about the stone-curlew:

Those that are much abroad on evenings after it is dark in spring and summer, frequently hear a nocturnal bird passing by on the wing, and repeating often a short, quick note. This bird I have remarked myself, but never could make out till lately. I am assured now that it is the stone-curlew (*Charadrius ædicmenus*). Some of them pass over or near my house almost every evening after it is dark; from the uplands of the hill and Northfield, away down towards Dorton, where among the streams and meadows they find a greater plenty of food. Birds that fly by night are obliged to be noisy; their notes often repeated become signals or watchwords to keep them together that they may not stray or lose each other in the dark.

That is as simple as the easy lessons in reading for a child, but it is the perfection of prose narrative, as clear as water, and flows as smoothly. It is a faultless model, and shows better than the writings of almost any author in how few and common words it is possible to express what one has to say. For a lesson in English composition, if there were no other reason, it is worth while to study White of Selborne. I might add that his Latin and Greek quotations will give a little pleasant employment to young students.

NOTE.—Buckland's edition of *The Natural History of Selborne* is the best; it has a brief biography (perhaps all that can be obtained), and more than a hundred pages of interesting notes.



## THROUGH A MICROSCOPE.

BY SAMUEL WELLS.

## IV.



FIG. 1.

bottom. (Fig. 1.)

If there is a strong head of water where your

THIS is not the time of year when you can make excursions into the country and search for objects for the microscope; so you will look about and see what you can find at home; and if you live in Boston, Cochituate water will invite your inspection. The best way to get at the minute objects in this or any water that is supplied through pipes, is to make a bag of cotton cloth, not too fine, well washed in water without soap, about a foot long, large enough at the top to slip over a faucet that has a screw on it (like the common kitchen faucet adapted for a filter), so that it can be tied with a string, and small enough at the bottom to be tied on to the neck of a small bottle such as is used for homœopathic pills. This bag should taper gradually in size from the top to the bot-

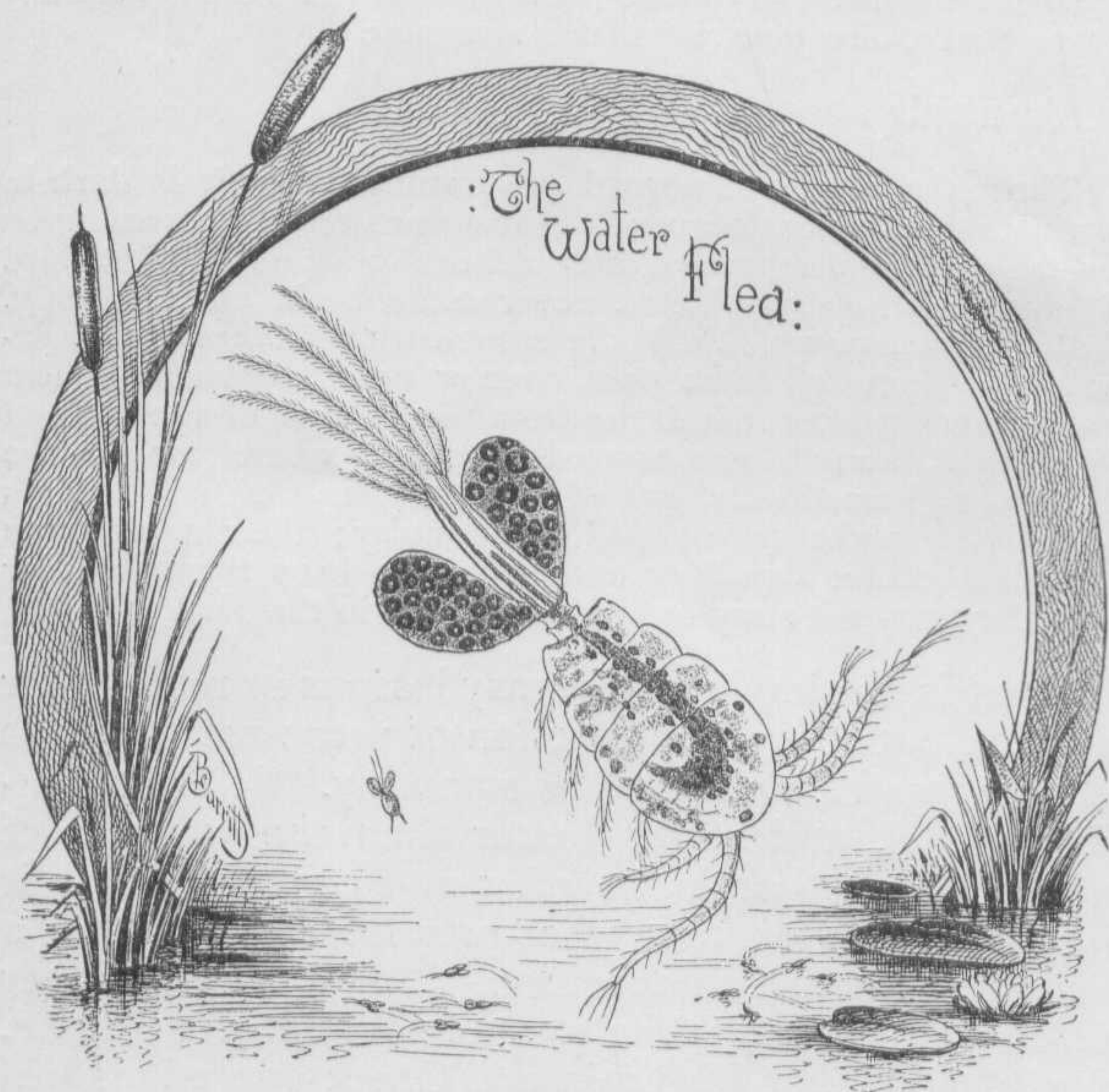


FIG. 2. CYCLOPS QUADRICORNIS. MAGNIFIED 20 DIAMETERS.

faucet is, you must reduce the pressure by opening other faucets on the same floor, such as those in the

laundry, otherwise many of the small creatures will be crushed in the interstices of the bag. Now let the water run. The bag will swell out and the water ooze through its sides, and all objects too small to

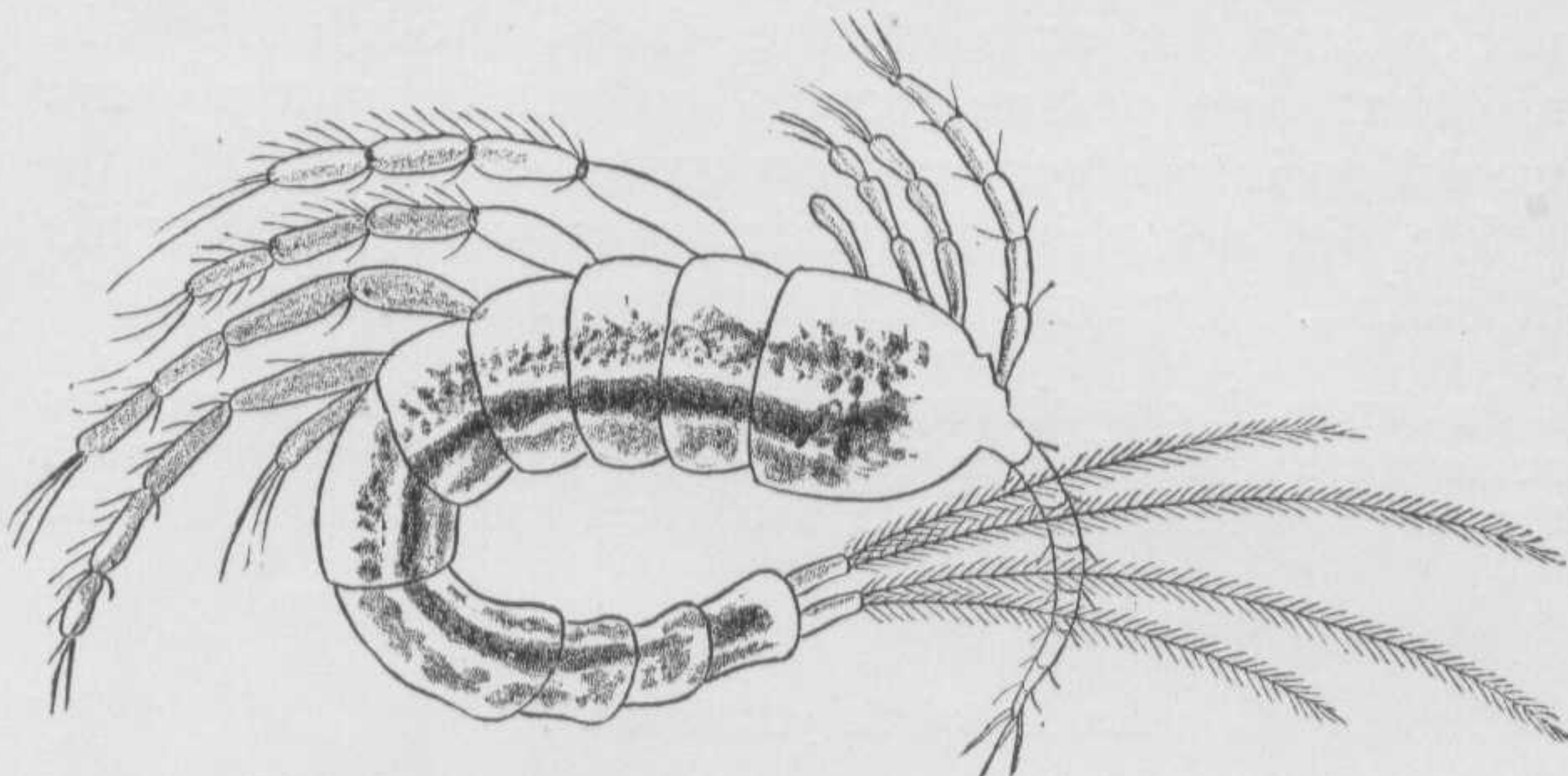


FIG. 3. CANTHOCAMPTUS MINUTUS. 40 DIAMETERS.

pass through it will fall down and settle in the little bottle at the bottom. When you see that there is a considerable amount of sediment in the bottle, shut off the water and gently squeeze the bag between your thumb and forefinger, beginning at the top and moving your hand down towards the bottle. This movement will cause much of the sediment that has adhered to the sides of the bag to fall down. Now untie your bottle and set it aside and let the water run through the bag to clean it. If you have a filter attached to your kitchen faucet you can get a very good idea of the solid contents of the water by unscrewing it, or turning it over if it is made so as to reverse, and letting the sediment that has collected on it drip into a tumbler, but the bag gives much better results, as many of the delicate forms that live in the water are crushed to death on the filter.

Having got the sediment in either a tumbler or a bottle, you must make your first observation on it with the naked eye by holding it up to the light and looking through it. You will find it of a brown color, because a large part of it consists of particles of earth and decayed vegetable matter, but you will presently see many little white specks moving about with a jumping or hopping movement. These are commonly

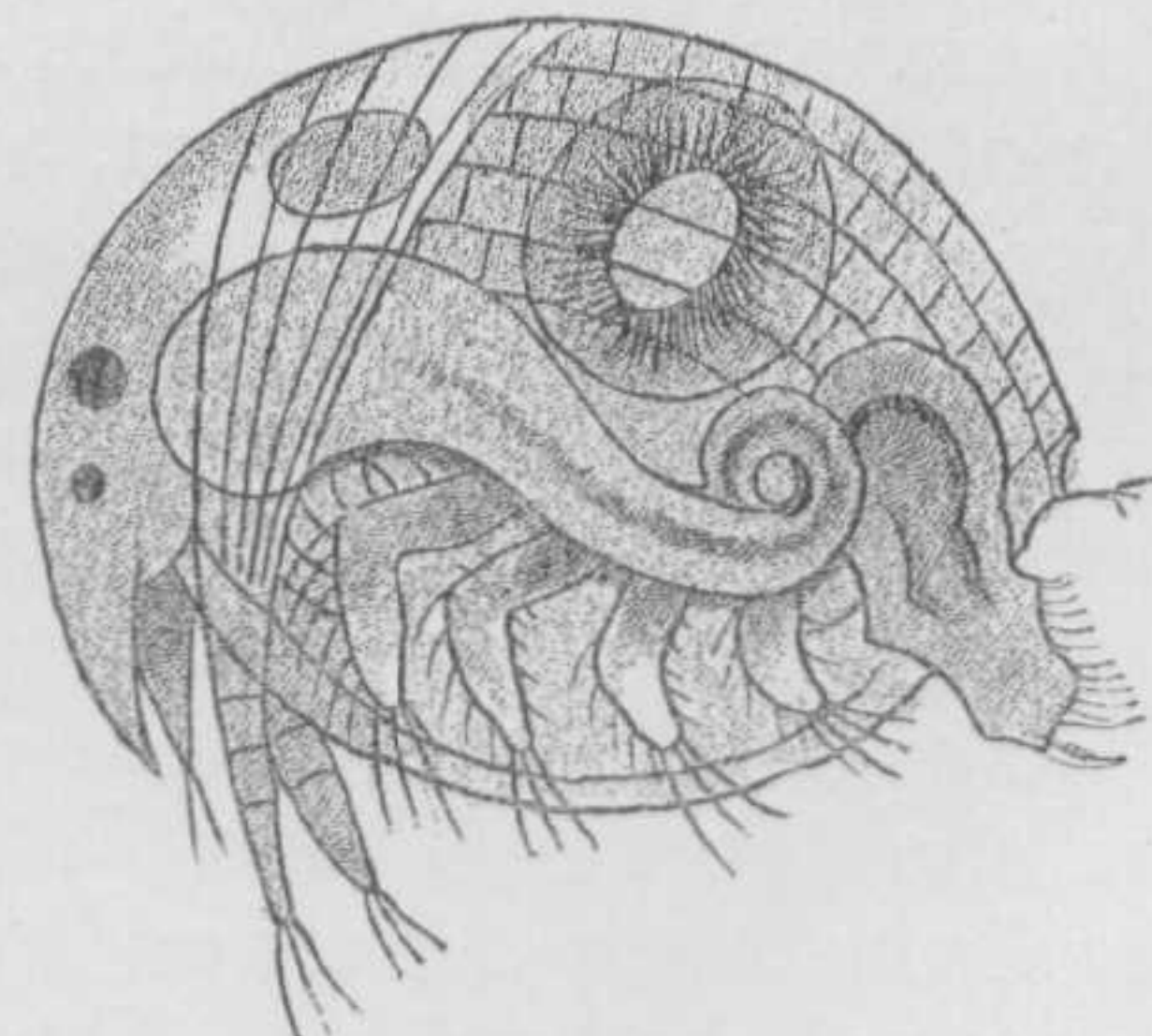


FIG. 4. CHYDORUS SPHÆRICUS. 50 DIAMETERS.



called "water-fleas," on account of their peculiar movements, but the name is misleading, as they belong to the *Crustacea* (animals having a shell or crust like the lobster), and not to the insects.

They are found abundantly in ponds and ditches, and in salt water. Sometimes they are so abundant in drinking water that has not been filtered, as to alarm a timid person, but you will find them just as good to eat raw as they are cooked. The most common of these little creatures is the *Cyclops Quadricornis*, so called because he has one eye and four horns. (Fig. 2.)

This picture represents a female, and she carries her eggs in the two little black bags that you see fastened on each side of the abdomen. You will find it very interesting by and by to watch the eggs hatch and see the little cyclops hop away. When young they do not look much like their parents; they are rounder and their legs are more prominent. The female cyclops (the male is comparatively rare) is the most common creature in Cochituate water, and as it is constantly eating, it helps to purify the water, and, in its turn, is eaten by the fishes.

In swimming it contracts its four horns and its fringed feet with a quick movement that throws it forward through the water with a leap.

Its one eye is of a brilliant red, and is a beautiful object under the microscope. The shell also is some-

times beautifully colored, and is often transparent, so that the internal organs are plainly visible through it.

Another of the family of *Cyclopidae* is the *Cantho-*

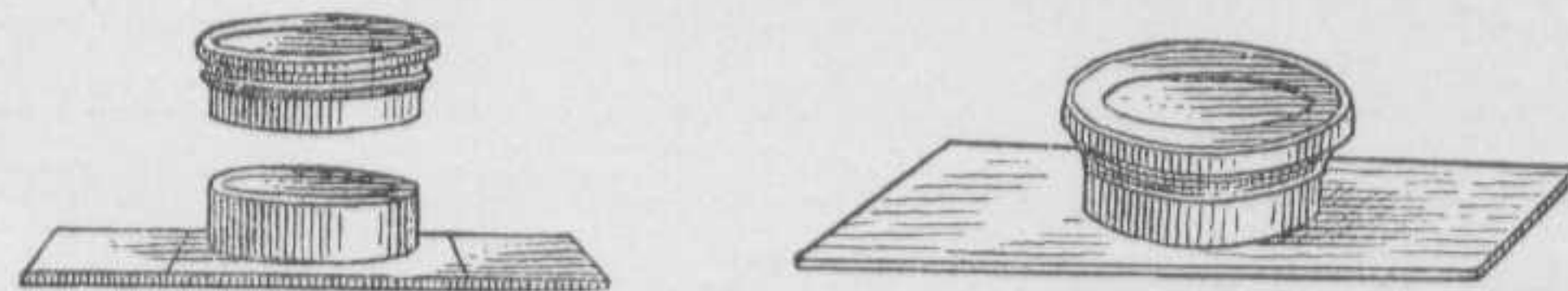


FIG. 5.

*camptus minutus* (fig. 3), which you see is longer and more tapering in its form than the *Cyclops Quadricornis*. It is also very common and very active.

*Chydorus Sphaericus* (fig. 4) is a very pretty round form interesting to study when transparent.

All these and some others with rather hard names are in that division of the *Crustacea* called *Entomostraca*, meaning shelled creatures whose shells are cut and do not cover them all round. On this principle, an oyster on the half-shell might be called an *Entomostracan*.

Now to catch these lively fellows, you must take a dipping tube and be patient, and when you have got one in the tube, carefully drop it on the bottom of the "live-box" (fig. 5), and put on the cover. Examine it first with the lowest power you have. By careful management of the cover you can catch it between the top and bottom without breaking the shell, and in this prison you can study it at leisure.

## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

### IV.

#### LOUIS VICTOR'S SUFFERINGS: PHOTOGRAPHS.

THERE was once an orphan asylum called the "Shepherd's Fold." Children who had not parents to care for them were sent there to be reared, and benevolent people gave money from time to time, to buy food and clothing for the children and pay for their education. At length it became suspected that the manager was keeping this money for himself and was neglecting his little wards. The officers of a society for Prevention of Cruelty heard of this, and they visited the asylum, and found that it was true; the poor little children were nearly starved, and were shockingly ragged, dirty and sickly. The officers immediately sent for carriages, put the children in them and drove with them to another asylum, where they could be fed, washed and clothed. And in a short time the selfish, cruel manager was tried for his misconduct, and was found guilty, and sent to prison.

The officers were greatly helped in proving that he was guilty, by photographs of one of the children, named Louis Victor. Before this boy was sent to the asylum his friends had his photograph taken; it showed him to be a strong, hearty, fine-looking boy about three years old, sitting up very erect, holding a little gun, and wearing a bright, animated expression of face. When the officers brought him away from the Shepherd's Fold they had his photograph taken again; it showed him very emaciated and sick, lying on a little couch so weak that he could not lift his head, and looking as if he were at the point of dying of starvation. On the trial the witnesses testified that Louis had scarcely any food at the Fold, and that he grew sickly for want of nourishment; but recovered soon after he was taken to the better asylum. Then these two photographs were shown to the jury. The judges said that photographs were a very good means of exhibiting little Louis Victor's sufferings. Thus we see that photographs may be very useful in trials in court. And in fact they are



often used both in explaining how the person or thing photographed looked on some former day; and also in detecting and arresting persons who have run away.

Another trial in which a boy's photograph was useful in obtaining justice for him, has occurred. A farmer took the lad to live in his family, and work in his house and upon the farm. The boy did not rise in the mornings so early as his employer wished, and the latter one morning went up to the boy's sleeping-room, and while he was in bed and undressed, whipped him very severely and cruelly. The friends of the boy immediately had a photograph taken, showing how his back was bruised and wounded by the blows, and then brought a lawsuit against the harsh employer. When the jury saw the picture, they said that the man should pay five hundred dollars damages. If there had not been a picture taken at the time, most likely the farmer and his wife and children would have sworn that the boy was hurt only very little, and the jury would not have known whether to believe them or the friends of the boy.

There lived in Baltimore ten or twelve years ago, a man of the simple name of Goss, and one bearing the more complex name Udderzook. They were brothers-in-law. The man of simple name seems to have been of confiding mind, the other to have possessed a cunning, crafty disposition. They united in a plan of making money by cheating insurance companies; thus: What are called "life insurance policies," for \$25,000, were taken out on the life of Goss—that is, the insurance companies agreed to pay his family the money when he should die—then the two obtained the body of a man looking somewhat like Goss, laid it in Goss' paint-shop, and set fire to the shop; then Goss ran away, while Udderzook staid by the fire, assisted in bringing out the dead and burned body, made believe to lament and cry because his dear brother-in-law Goss had been burned to death, and in course of time demanded the insurance money from the companies.

Meanwhile Goss wandered about awhile, and at length strayed into Pennsylvania, calling himself "Wilson," and waiting for Udderzook to collect the money and bring him his share. But Udderzook had a different plan. He came to where Goss, called "Wilson," was hiding, coaxed him to take a walk in a wild forest, and there killed him. This was very crafty and cunning, for he thought that no one who knew Goss would ever look for him in those woods, because they all supposed he had been burned in the paint-shop; and that if the body should ever be found by the people of the neighborhood, they would suppose it to be the stranger they had heard called "Wilson," and no one would particularly care. But there was a photograph of the murdered man. When he went to the insurance company's office about his policy, he and the agent became friendly, and one day they had their likenesses taken on one card, side by side. This photograph was shown, as it happened, to people who had seen the

man called "Wilson," and they recognized the companion of the agent in the picture as their Mr. "Wilson," though really Goss. Thus the crime was detected, and the murderer was found guilty (and hung) by means of a photograph. No matter how cunning a person's plans of committing a crime are, there is very apt to be some little accident which leads to his exposure and punishment.

Some of the ways in which pictures are used in searching for criminals who have run away, are curious. Suppose that a clerk in a bank steals a large sum of money and travels to the South or West. The police officers immediately inquire for a picture of the man. When they obtain one, they have it photographed, printing a great many copies. Under each is printed a description of the clerk, and an offer of a reward to any person who will report having seen him. Circulars containing the picture and reward are sent to ever so many people living in the part of the country to which the clerk has gone. In a great many cases some person meets him, notices that he resembles the picture, and sends word to the police, and they come and arrest him. Of course such runaways try various means of disguising themselves so as not to be recognized, but that is a very difficult thing to do. Thus a criminal can very often be detected at a great distance from home by means of distributing copies of his photograph.

A man in England robbed another of his watch and sold the chain, and then took passage to this country by a sail vessel. The police obtained his photograph and showed it to the jeweler, and he said, "That is the likeness of the man who sold me the chain." They then took the jeweler and the picture with them, and sailed in a swifter vessel to this country, arriving before the criminal could. When his vessel reached the wharf the English policemen were standing there, waiting to arrest him, and having the photograph to prove that he was the guilty man. A fugitive criminal named Chastine Cox, was caught by a newspaper reporter, in Boston, by means of his photograph.

Of course photographs must not be used in trials unless they are faithful and accurate. Sometimes they are unskilfully or carelessly taken, and do not represent the original correctly. Sometimes they are purposely distorted; a picture can be taken as a caricature, which will be very absurd.

A remarkable instance of this is the case of a skilful photographer who contrived means of casting upon a card a dim, shadowy appearance resembling a ghost as people commonly imagine ghosts. He advertised that he would take pictures of the spirits of persons who were dead! And there were people who believed that this was possible, and who paid him a good deal of money for such pictures.

A gentleman whose wife was dead, came for one, and was taken with a faint outline of a lady standing behind him, which the photographer pretended was a likeness of the wife.



A lady who had lost her daughter was taken with an indistinct, filmy representation of a little girl standing by her side; and he told her that it was the daughter.

Nothing of this kind could be true, therefore before long the artist was prosecuted for swindling. If pictures representing ghosts can be made, of course there may be ways in which a deceitful person could make very untruthful *cartes de visite*. The judges are careful to allow only veritable likenesses to be used in trials.

Photographs are used in many other ways. In large cities the police officers keep what is called a

"Rogues' Gallery," a room in which are hung portraits of thieves, swindlers, and other offenders who have been arrested. These are of great service in identifying criminals. The criminals know this, and some of them make great effort to prevent a good likeness; they twist their faces and limbs so as to look as strange as possible while they are before the camera, and their pictures are very queer. Copies of important papers are often taken by photography. If a building or a bridge falls, and persons hurt by it mean to bring a lawsuit, they often find it convenient to take a photograph showing exactly how it appeared at the time.

## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

### IV.

#### USE OF TOOLS.

WE begin with the saws, of which you have two: cross-cut saw, and splitting saw.

The use of a cross-cut saw, as the name implies, is to cut *across* the grain or fibre of the wood: it is one of the most indispensable tools we have. The teeth are finer and closer together than those of the splitting saw, which, as the name describes, is intended to cut *with* the grain, usually lengthwise, of a piece of wood. Never try to substitute one for the other, for you would injure your tools. When you want to use a cross-cut saw, the saw should be held at an angle of about forty-five degrees, and must also be held steadily without swerving to the right or left; otherwise the teeth of the saw will stick, and you cannot make a clean cut.

You will observe in looking at a saw that the teeth are *set*, as it is called; every other point turning a little away to the right or left of a straight line; the reason of this is, to make the cut wider than the saw blade; otherwise after cutting in a little way the friction would make the blade bind. Saws are, or should be, in proper condition to use when they are bought; if not, or if by any accident the teeth should get bent, you must have the saw *set* without meddling with it yourself.

A splitting saw is used differently from a cross-cut saw; it should be held more nearly upright; the cutting is always done on the *down* stroke. Never press the saw against the wood; the teeth will catch, and the saw bend, and the wood won't be cut if you add any weight to that of the saw itself.

There is a certain amount of knack required in

order to saw well, but practise will improve even the most awkward workman. Always saw slowly and easily, in a sort of regular time. Be sure the wood is held firmly and doesn't *hop*.

#### USE OF PLANES.

We have jack-planes, smoothing-planes, and block-planes. When you want to make a board thinner, or smoother, it has got to be planed; also the sides and edges of a board are sometimes rough, or you wish to bevel them.

If the grain of the wood is perfect, there is no trouble about planing in either direction, but generally the grain runs in a slight slant or angle to the surface of the board instead of parallel to it. If, then, you start your plane and plane "against the grain" of the board, the edge of the plane will catch in ends of the grain lines, and the surface will be chipped instead of smoothed. If, however, you start it and plane "with the grain," the ends of the grain lines are smoothed down, like the feathers on a bird's wing when you stroke it down instead of up. So it is well to be sure about the grain before you begin to plane. Sometimes the grain is twisted and runs one way in one part of the board and another way in another part in a wavy line. Then you must vary the planing according to the surface. You would soon learn these simple things perhaps, but to know them at the outset will save you some vexation.

The smoothing-plane is much shorter than the jack-plane, and is used for smoothing smaller pieces which would be lost under the jack-plane, and also for smoothing inequalities left by the jack-plane. I have put no smoothing-plane on your list, as for ordinary work the block-plane can be used as a smoothing-



plane. Thus: Turn the small thumb-screw at the front of the block-plane and press it forward; this opens the mouth of the plane so that the plane can be *set* more and cut a larger shaving.

Now for the proper use of the block-plane, remembering to restore it to its original *set* if you have been using it as a smoothing-plane. To smooth the ends of boards you need a small plane which can be *set* very fine; i. e., with the blade projecting very little from the face of the plane, and with the mouth so closed that the blade will not chip in cutting.

One important principle must be practically learned before you can do good work: *Everything in carpentry from beginning to end must be done on the square.* In planing, above all things, the square must begin every bit of work, and end it, and be used to test it, all the way along; it is just what the name implies, a *try square*; so perhaps the next thing explained had better be some of the uses of the square.

To give all the uses of this apparently simple tool would be to give you a thorough knowledge of geometry, and fill a volume. I will, however, give some of the more common uses:

1. In sawing across a board, if you wish to have the cut true and even, you must use the square. One edge is, of course, already planed, and from this all your lines are drawn. You wish, we will suppose, to saw three inches from the end of your board; lay the thick or handle part of the square close against the even edge of the board, three inches from the end; you will find that the blade lies flat across the board at a right angle with the edge, and a pencil line drawn close to the blade will give an exact guide for cutting.

2. To test the evenness of the end of a board which you have been trimming with a block-plane: Apply the square to the side and edge of the board; if the work is true, the blade will be level with the end of the board; if uneven, the defect is quickly seen.

3. It is well to test your square itself; thus: Lay your square snug against a straight edge with the handle to the left; draw a line where the edge of the blade comes: then reverse the square, having the handle to the right; draw a similar line: if the square is true the lines will coincide; if they diverge ever so little the square is imperfect, and you should buy another.

4. In planing the edge of a board, put the handle of the square against the *face* of the board; the blade will then go across the edge, and you can soon see if it is even; i. e., at right angles with the face of the board.

Hammering a nail seems a very simple thing, but there's a right way and a wrong way to do that, as you'll find for yourself after you've split two or three bits of work; but you might as well learn the right way at first.

If you look at a nail of any size, from a brad to a twenty-penny spike, you will find that the sides are parallel and straight, and two are wedge-shape or sloping; also one of the straight sides is finished smooth, the other is rough. A nail is virtually a wedge. Now the principle of the wedge is to split things when the wedge goes with the grain, as when you split a board with an axe or hatchet; for an axe is a wedge, as you will see if you think about it.

If, then, your nail is put in wedge-fashion *with* the grain, ten to one the second good tap with your hammer splits the board; if, however, you turn the nail the other way, so the wedge side is *across* the grain, and the straight side *with* the grain, the nail is held firm by the grain pressing against the wedge, and the board doesn't split. This is the reason that fine work is done with brads better than with tacks, for tacks are wedge-shaped on all sides, and in driving them if the wood is thin it is very apt to split.

Always *start* a nail in the direction you mean to have it *go*, and don't depend on straightening it afterwards. If, however, it gets a wrong slant, don't bend it back with your fingers, nor hit it a knock sideways with your hammer which will likely enough break the nail short off; but with every regular stroke of your hammer give an inclination in the right way, and it will get there.

Don't hold on to the nail too long; in soft wood the second hammer tap ought to find the nail firm enough to stay. Don't make the first or the second hammer stroke a long hard one; if you do, likely as not you'll mash your fingers. The first tap should be light and short; get the swing gradually, a few inches first, adding a few inches more with each stroke; by the time you want full force to drive the nail home, you'll find you can't hit anywhere but on the head of the nail. This is something that practise alone can make you perfect in. If you watch a good building-carpenter, it seems as if he threw the nail into place with one hand and hit it on the way.

Don't think you must look at each nail in order to place it right. Your eyes must be in your finger tips; *the smooth side goes with the grain.*

Always keep the different sizes of nails separate; then you won't be bothered by finding the wrong sort of nail in your fingers when you are in the midst of a job.

In using chisels and gouges never strike with a hammer, but always with a wooden mallet; the hammer splits the handles.

In most chisel work it is better to put the bevel edge to the line you wish to cut until you have cut out most of the wood, then finish with the other edge and the pressure of your hand instead of the mallet.

It will be easier to explain the use of the other tools as we come to them in construction, as we possibly shall.



## WAYS TO DO THINGS.

BY ERNEST INGERSOLL.

## XV.

## HOW TO BUILD A PORTABLE WOODEN TENT.

WOODEN tents such as I am about to describe, are in use by the contractors who are building the western extensions of the Denver and Rio Grande Railway in Colorado. There are no towns there ahead of the railway, and it is necessary to provide sleeping-quarters, provision and eating-houses, for the engineers and road-makers. It is therefore needful to have a style of building which can be put up and taken down easily, and, above all, which shall be capable of transportation over the frightful mountain roads. The result, it seems to me, might be useful to beavies of boys, to schoolmasters and pupils, and to families who camp out every summer for some considerable time, and really need to take to the woods a house somewhat better than a cloth tent, where they can live in warmth and comfort, and which shall be a cosy headquarters for storing supplies, and to which to return. I propose now, in two or three winter numbers of the magazine, to instruct our young home carpenters how during their winter leisure to get one of these comfortable wooden tents in complete readiness for summer transportation. It can be done very cheaply; if you can improve on it, so much the better. For my part, I have never seen or heard of the like anywhere else, though I believe that circus sideshows sometimes have a far more cumbersome arrangement answering the same purpose.

Boys might club together, not only to own such a portable house in common, but to build it — a jolly way of spending Saturdays in some great wagon-house or tool-chamber where there is a big workbench and a good tool-chest.

This movable house consists wholly of wood except the roof, which is canvas, and the floor, which is dirt, unless you choose to plank it. It may be made of

any size you see fit, it only being necessary that all the parts are adjusted to the scale decided upon. The dimensions I give, however, are measured upon a plan twelve feet square, because that happened to be the actual size of the one nearest to me. The railway men generally join from two to half a dozen of these together, end to end, making a long and commodious building. A half-dozen congenial families could do the same, insuring endless good times



A PORTABLE HOUSE.

in the forest solitudes. One twelve-foot length is then known as a "section." If you would rather have an oblong figure, make your ends shorter and reduce the length of your rafters; or, if you don't like the pretty low pitch of the roof which my measurements imply, lengthen your uprights and rafters to suit your own ideas of the right angle.

Now for my details:

The walls of your tent-house, six feet in height, are to be made of inch-thick matched flooring twelve feet long. They should be No. 1 pine, best quality. Fasten these firmly together, to the width of six feet, by three dressed cleats, six inches wide, one at each end and one in the middle, and do this on both sides. Make three of these platforms, or walls, which will furnish three sides of your house. For the fourth



side make a similar platform nine feet in length, filling out the remaining three feet with a door.

This door swings *out*, and the hinges should be very strong, preferably of the kind used on barn doors, so that it can be lifted off its hanging with ease, and so that the long shaft of the hinge will act as a support to prevent undue sagging. An arrangement must be made to lock this door. It can easily be secured on the inside by a bolt, and outwardly by hasp and padlock.

There remain, now, the peaks or gables at the ends, to be provided for. Many of the railway men get their roof canvas sufficiently large to come down and cover this, but I think a better plan would be to make two triangular platforms of boards, fitted to your peak, cleating them together just like the lower walls. Then place about four flat staples in the outside of your end walls, and let iron hasps bolted to the lower edge of your peak boards drop into them. This would hold the bottom of the peak and the top of the end wall squarely together. In addition to this a couple of bolts should pass through the upright and be secured by nuts, so as easily to be unscrewed. (See *fig. 14*.) There should be no middle cleat on the inside of the gable. The general



Fig. 2.

character of these walls appears in several of the illustrations, but the cleating is shown in *fig. 1*. Screws should be used throughout instead of nails. The woodwork remaining to be shaped, consists of the uprights, or centre-poles at each end, the ridgepole, rafters and braces.

The two uprights in my model were 8 feet and 9 inches in height; a greater length would add pitch to the roof. These uprights should be made of clear, firm stuff, 4 inches by 2, and should be thickened at their lower ends by adding pieces of similar size, as shown in *figures 2 and 4*. This upright stands inside of the wall, and edge-wise. Into its upper inner edge must be set two iron "eyes" having an inner diameter of three quarters of an inch. (See *fig. 3*.) The uppermost of these is placed about two inches from

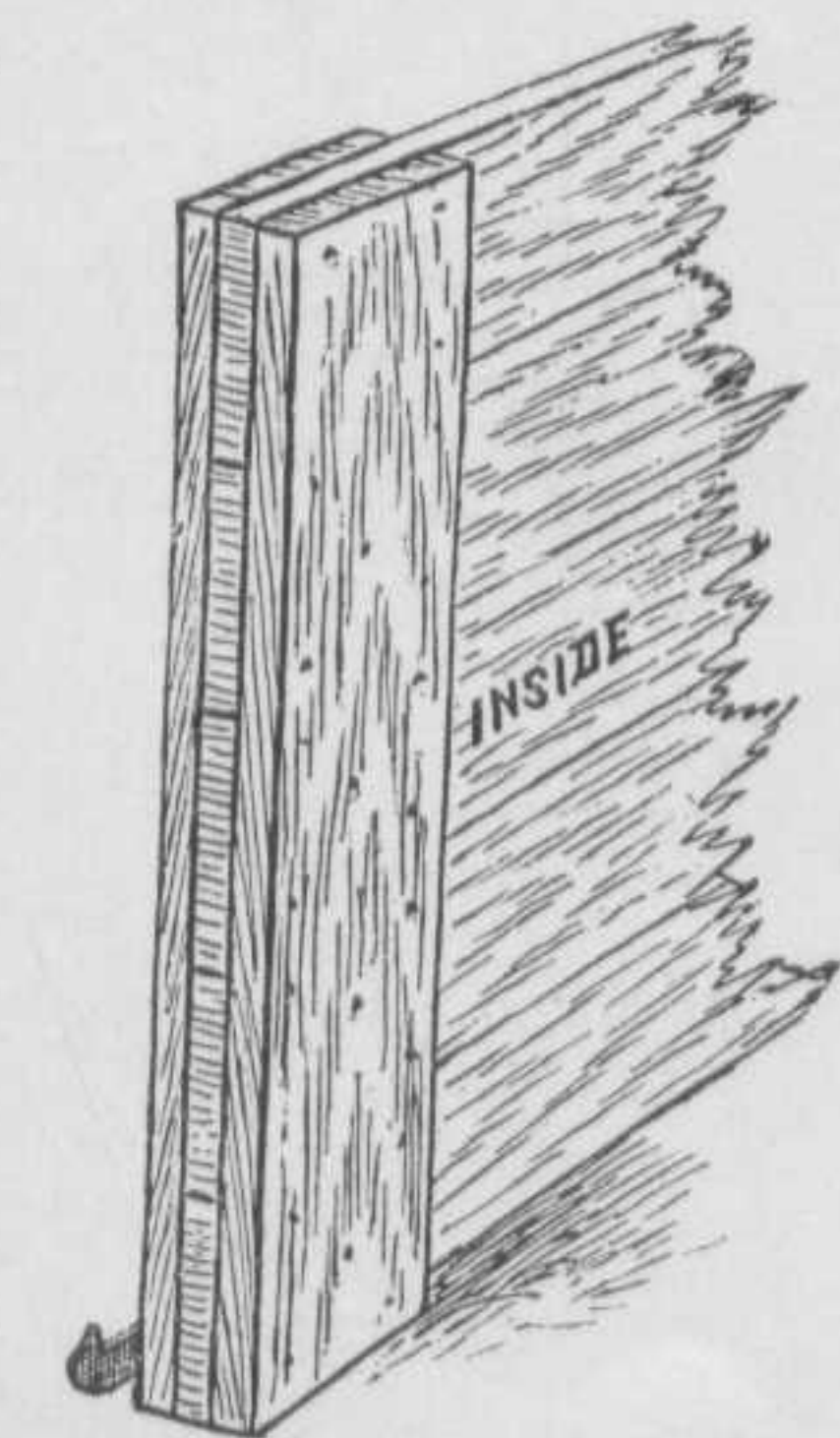


Fig. 1.

the top of the stick, and the second six inches below. These eyes should pass clear through the timber and be held by nuts on the other side. Six feet from the bottom of the upright, a hooked bolt should be passed through the timber, the hook facing outwardly, and having enough space between it and the wood to allow the wall to come between. Its purpose is to hold the end wall snugly to the upright: therefore it must be loose enough so that it can be turned up while the wall is being put into position, and then turned down to clamp it firmly, as in *figure 4*. Having made both uprights alike, you now turn your attention to the ridgepole.

This ought to be somewhat heavier than the uprights, two by six scantling strong for the weight of the canvas and an occasional gale of wind will put twelve feet and six inches in through from intended to eyes at the rights. This *fig. 5*. side of this screw in four or eyes, one from each end, and the others at equal distances between; to these the rafters are to be attached. (See *figs. 3 and 5*.) Similar staples must be placed an inch below the upper inside edge of the side walls to contain the irons at the lower end of the rafters, as in *fig. 6*; of course, therefore, it is necessary that the staples in the walls should fall exactly opposite those on the ridgepole.

The rafters themselves, eight in number, may be made of the same sized stuff as the uprights, or lighter, if a tough wood like elm or ash is used instead of pine; and each will be 7 feet and 4 inches long unless you want a pretty steep roof, in which case you must lengthen them somewhat. To the underside of the upper end is fastened a strong curved hook, which hangs in the staples on the ridgepole (*fig. 5*); while to the lower end is fastened a pointed iron three inches long, and set at such an angle that it will stand vertical in the eye on the wall (see *fig. 6 in the next number*) when the rafter is in place.

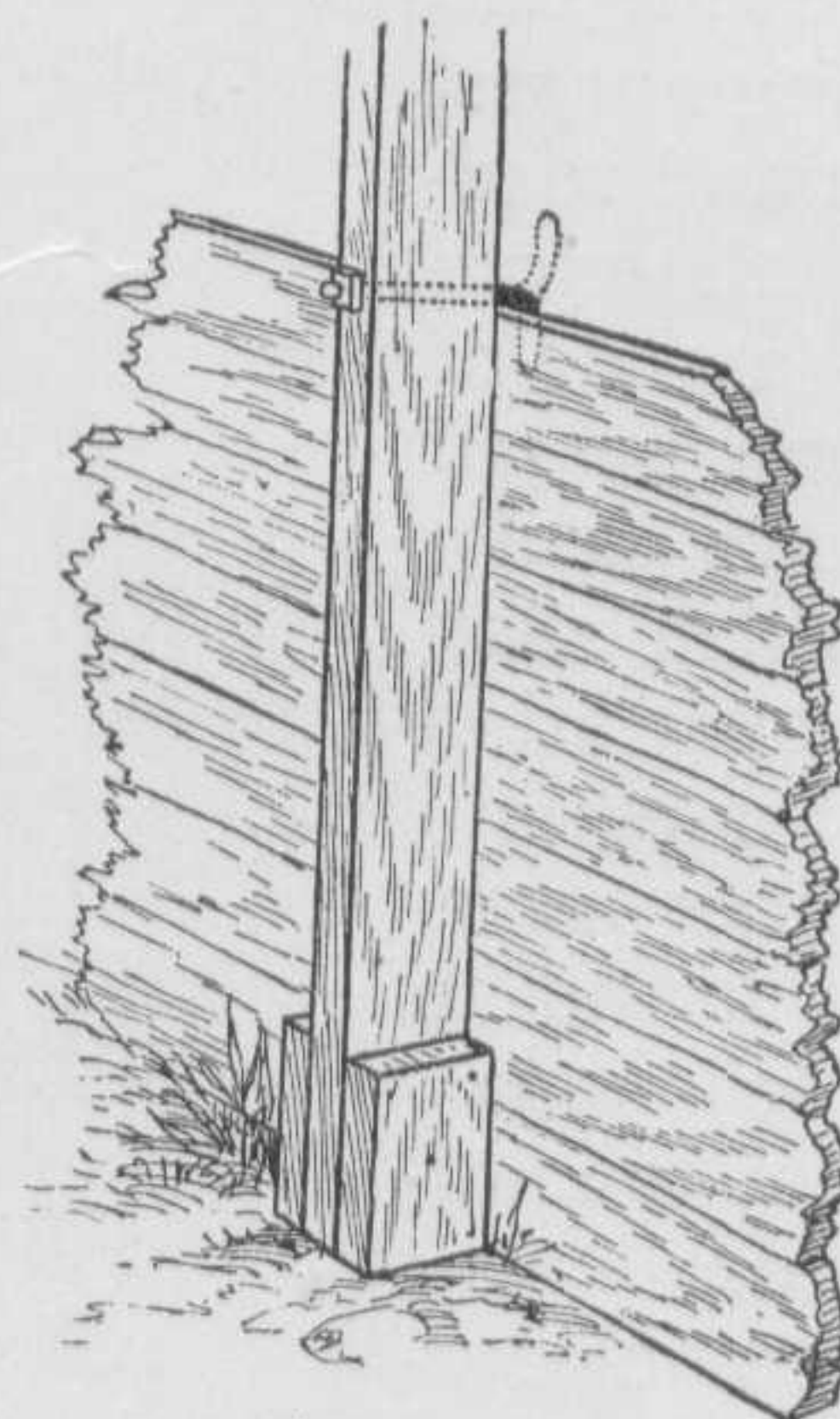


Fig. 4.

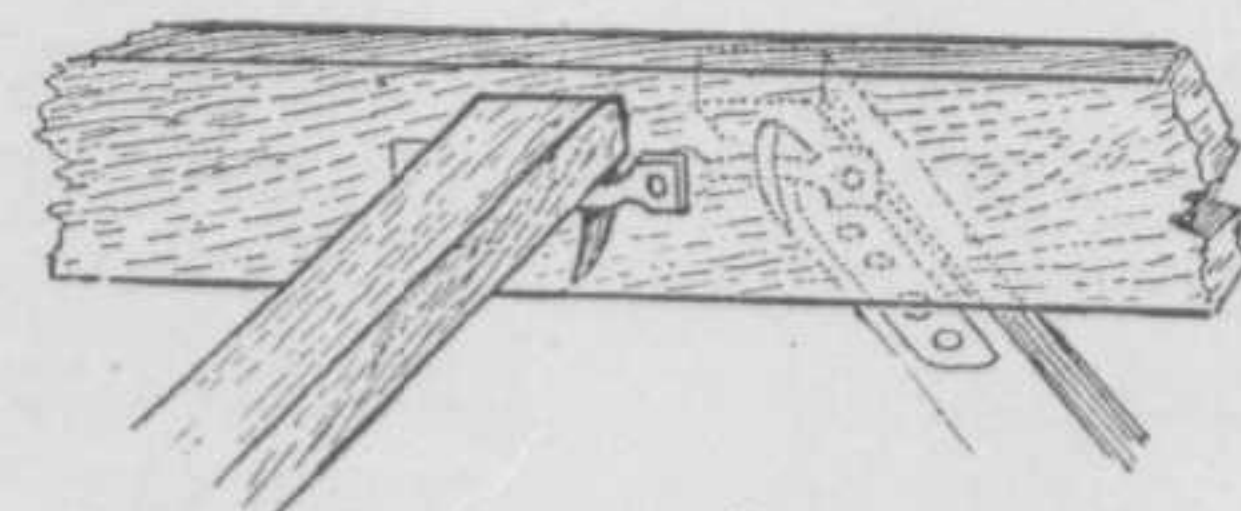


Fig. 5.

(TO BE CONTINUED.)



## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

## IV.

## A LADY'S ACCOUNT BOOKS.

DO you see that shabby little pocket memorandum book with blue cover and pencil tuck, on the hanging shelf with the smart octavos in Russia leather? That is a little girl's first account book, given with her first whole dollar to spend, by her father, when she was seven years old. You will find every penny of it set down scrupulously in the shaky handwriting: ten cents for writing paper, five cents worth of liquorice, three cents postage—it was just after the ten-cent postage for every letter was abolished—eight cents worth of zephyr wool, one cent for lozenges, five cents to a younger sister—ah, how many things that dollar bought! It lasted the greater part of a year for spending money I believe, till she was promoted to an allowance of five cents a week spending money, which you will find faithfully set down each Saturday, with one fearful lapse of months when it went to pay for a yard of ribbon, which she understood the clerk to say was four cents, but proved when cut and done up to be four shillings, or fifty cents. The clerk offered to take it back, seeing the little girl's mistake, but an order was an order with her childish sense of honor, and she paid for it with her mother's money, and stopped her allowance till the sum was made up. How hard it was to do without any money so long, and how ugly that ribbon looked always! I want to say that it would have been strictly right and ladylike to have let the clerk take it back, as the mistake was honestly made, and as long as we are not infallible, we should not be too proud to accept consideration for our blunders.

But it was long ago, and the slim young lady account book next it in blue morocco, has two or three stories of foolish expense nearly as sad to tell. But they went down in black and white, and did this good: that one day the owner sat down and counted up all the useless sums spent in a year, and at the head of the next page you see written the solemn injunction: "No more confectionery, no newspapers, no nuts, no photographs;" for in these trifles enough had been frittered away to buy the silk dress which was desirable for evening wear, and which could not possibly be afforded when it was most needed. The poor little student had felt that four dollars a year was more than she could afford to pay as subscription to a good library, yet in two years she had spent for occasional magazines and weeklies over twelve dollars, when the library would have given her the reading of

all the home and foreign magazines, and a hundred newspapers, with all the books she wanted beside.

It was a faithful lesson which the blue account book read to her, and when she went to housekeeping on a limited income, the first thing bought was a family account book, which did more, she says, to keep down expense than anything in the world. One can't go on spending needlessly with the record and balance of loss staring her in the face every day and week. Her New Year gift sometime ago was a set of housekeeping books, in small octavo, bound in dark-red leather to match, and a pretty show they make—Inventory, Personal Expense, Day book and Ledger—the handsomest volumes in the bookcase, among poets and birthday books.

Anna Maria, there are sheets of account paper sold at ten cents a quire, and the first thing this evening you want to make out a list of all the housekeeping articles in the house, and the condition they are in. Women usually keep the run of such things in their minds; but it is more businesslike, and makes matters clearer to know what you have in writing. Then you know whether the wind has blown away dinner napkins and pillow cases, or whether the washerwoman scorched a pair and tucked them in the coal hole, and whether the new sheets wore as long as they should, or whether there is soda in the new washing-mixture eating them thin every week, and a dozen other things a housekeeper must be aware of. You must go with pencil and paper through the house, making a rough list—"taking account of stock"—which you will find much to your profit. Have one page for table linen, a second for bed linen, which is the name for it, though it's all cotton; another for the clothing, a page for each one of the family; the furniture, bedding, crockery and china, kitchen ware, stores—that is, flour, meats, preserves, wood, coal, and things bought by quantity. You see how it is set down in this book:

Table linen,	July 13th, 1881.
1 doz. breakfast napkins, nearly new,	
1-2 " " " half worn,	
1 doz. dinner napkins, fern pattern, new,	
1 " " " snowdrop " ten mo's wear,	
1 " cal'e " fringed, " " "	
3 half bleached tablecloths, " " "	
3 white check, " " "	
2 dark-red lunch cloths, six mo's "	
1 blue and silver-gray " new,	
1 wild rose cloth, 3 yds. long, good,	
1 scroll pattern " " " worn,	
	April 20th, 1882.
1 double damask dinner cloth, lily pattern,	
2 half bleached breakfast cloths, snowdrop pattern,	
1 3-4 doz. napkins, oak-leaf pattern.	



June 18th.

Made four tray-cloths from scroll pattern tablecloth. Also two window-seat cushions from old turkey-red cloth.

Here is the china closet inventory :

8 plain china coffee cups & saucers,  
12 " " tea " 10 "  
13 " " breakfast plates, perfect,  
7 " " " " cracked,  
9 cut glass water goblets,  
14 common " "  
1 " glass pitcher,  
24 jelly glasses, and so on.

Silverware.

1 plated dinner castor,  
1 " breakfast "  
1 doz. silver teaspoons,  
1 doz. ice cream "  
6 silver tablespoons  
4 " " " gold lined,  
1 " fish-slice,  
1 cake basket, plated, etc.

You see this inventory only has to be made out two or three times in a life, and you may give your spare hours for a week to making it. After this, you must put down everything bought, or made up, or lost, and go over the count as often as necessary. The housekeeper in a large English family keeps such an inventory, and compares it once a week with the articles in use to see that none are lost or stolen. If you do your own work, once a month will be often enough to count up the spoons and toilet covers, the socks and handkerchiefs, and all the rest.

Next you want a few folio sheets of bill paper in a stiff pasteboard cover, easy to write on, with a pencil tied to a string; this cheap day book to hang in the kitchen beside the calendar and clock. Here every item is entered which you buy, whether on credit or paid for at once. Also have a letter hook, clip, or some contrivance for holding bills which the butcher, baker and candlestick maker will send in once a week or once a month, if you buy on credit; and remember! always ask for a bill when you buy things, unless the purchase is very trifling and paid for immediately, and *always* make the dealer receipt that bill when you pay it, signing his name and "received payment," plainly; lastly, *keep* all your bills whether paid or not, to the end of the year, when small receipts may be burned. *Always* keep receipts for rent, board, taxes, for borrowed money, if you ever have to borrow, and it is not a bad plan to file all your bills of every sort; that is, put them away in regular order. People who change from place to place often, will find it wise never to destroy a receipted bill. Mistakes will happen with honest folks; petty dishonesty is not so uncommon as it ought to be—a dealer's clerk may forget to enter your bill as paid on his book, or he may think it smart to try to collect the money twice, or there may be persons of the same name as yours who have not paid their bills; but if you have the dealer's bill in his own or his clerk's writing, with that little "*Rec'd pay't, John Smith,*" or whatever his name is, that settles the matter: you cannot be called on to pay it over. You will find the

habit of keeping receipts save you a world of cheating when you take that tour in Europe which every girl looks forward to as a possibility in her life, for continental shopkeepers have a trick of getting the same bill paid two or three times, unless one is shrewd enough to have the receipt to show.

With the inventory, your hasty day book and a better book in which you enter the sum of each week's expense with different dealers, or under the heads of fuel, meats, vegetables, furnishings, groceries, etc., your housekeeping accounts can be kept in good shape. It is no small credit to a girl to have a set of neatly kept books, by turning to which she can see at a moment, what each week's expense has been, how much has been made or saved in housekeeping, and what indulgence in spending she can allow.

The next thing you need to learn, Anna Maria, is, just what ought to be allowed for everything. How much coal or wood is enough for each fire one day, week and month; how much flour, sugar, meats and vegetables you need for each person in the family; how much coffee goes to make a cup or a quart, strong or common; how much gas or kerosene should be burned; how long supplies ought to last—this knowledge is one of the most important parts of housekeeping, and one which people know the least about.

But if you don't know how much it takes to feed and warm the family with comfort, how can you order supplies so as to have plenty on hand, and yet not waste as much as you use? If ten dollars a week is all your father can afford to pay for groceries and fuel, how can you be sure you are not spending more than you can pay, or that you get all the pleasant living you might out of that sum? This kind of wisdom makes a woman a good manager, and she will keep a family well dressed with a good table and a trifle to spare for the same money on which a family of poor contrivance is always pinching and running behind. I don't want you to learn to save for stinginess' sake, but that you may have all the good and pretty things money and labor can bring you. I well remember the sense of control over affairs it gave me to find that it was possible to calculate the quantities and cost of housekeeping as exactly as the yards of lining and trimming to make a dress. Now here are some things you want to make note of:

One third of a ton of coal should keep fire all day in a stove or open grate one month; and you must allow that amount for the cooking range ten months in the year. In summer many families contrive to do most of their baking and roasting the same day the ironing is done, and only light the range that day, cooking by a kerosene stove the rest of the time.

Good management will have enough left from the three tons for the range to last for this summer fire. A No. 8. furnace should burn night and day on half a ton a month, and a large one takes not over one ton a month when well managed. A large base burning stove run night and day to full heating power needs not over half a ton. One half cord of pine, and



the same of dry oak, should be kindling enough for range, furnace and two extra fires one year. Now, find how many fires you need to keep in the house, and the price of fuel, and calculate how much you must order in a year, and what it will cost. Find out how much actually is used in the house in one year, and see whether it is less or more than the estimate. Your father can tell you what the coal and kindling bills amount to in a twelve month, and if it is more than half a ton a month for each full fire, there is waste going on which ought to be stopped, and it will be your work to save that waste. If you can have just as good fires and just as warm rooms by burning ten dollars less in coal in a year, that ten dollars can go toward new books, pictures, or new china and furnishings. I advise every boy and girl twelve years old and over, to learn how to build and keep fires in furnace, range, grates or stoves with the least waste of fuel, for it is knowledge certain to be useful. A man once told me his kitchen range used two tons of coal a month, although it was the same size as my own which only used half a ton to do the same work. There were twenty-four tons of coal wasted in doing the work of six; and as coal was then six dollars a ton, there was over a hundred dollars thrown away just as if he had tossed the bank notes into the fire. I think you will agree there is more fun to be had out of money than to send it up chimney in this way.

Now as to food. How much of each kind is enough for each person daily or weekly? You must learn something about this, or you will be alternately providing too much and having it spoil on your hands, and then scrimping to make up for it. Never waste, never stint, is the good housekeeper's rule, and the most wasteful extravagant people are sure to be the meanest in many matters.

An experienced woman will tell you that in a family it is safe to allow, for each person consumes in a week, one quarter to one half pound of butter, one-half pound of coffee, two pounds of sugar, four pounds of meat, and three loaves of bread in some shape, beside one third of a pound of wheat or oatmeal, fruit and vegetables not being counted.

Now as you wish to live expensively, or moderately, or economically, as suits your income, you can decide whether to allow Philadelphia butter at seventy-five cents a pound, Mocha at forty-five, prime cuts of beef at forty and sixty cents a pound, as they cost in cities, or the best country butter at thirty-five cents, sirloin and chops at twenty-five cents a pound, and Java at thirty-five, which are common prices. Or if, as you do,

Anna Maria, you wish to spare as much money for pretty things and good times in other ways, you must learn thrifty ways of buying supplies of just as good quality at the seasons when they are cheapest, and in quantities when they are always lowest in price. You can have a better table, with more variety than most families, at a great deal lower cost, for nothing is less understood among Americans than how to make the most of food. I see plain families sitting down to salt fish and potatoes for dinner three or four times a week because meat is high, and they do not know how to serve a daintily browned steak from a cheap cut, or braise a bit of soup beef till it looks and eats as well as sirloin roast, or to make a rich and savory stew out of "trimmings" of meats. They never can afford venison or game, though by watching the market they would sometimes find these as cheap as any meat, and they don't use maple syrup, or comb honey, or peach butter, or quince marmalade, and a dozen other nice things they might have if they knew how to buy supplies cheaply, as they should. For you must give your folks ample variety, Anna Maria; not so much at one meal, but variety from day to day if you want them well and strong and good humored. The human system needs variety, and you will find as a rule that the food which relishes best, nourishes best. What does a doctor order to make an invalid gain strength, but game, chicken, broths, ice creams, jellies, white grapes, and things which taste good because they *are* good? And to keep your people sound, merry and well, you want to give them just as good food as you can afford, plenty of it, and in variety. As I have told you, good food is not always what we call rich food, which generally means over-rich in butter or fat, eggs, wine, or spice. Yet it should be rich in some of these things to a degree, rich in nourishment for nerves and brain, phosphate for bones and teeth, fat to keep us warm and round the limbs, and gelatine to lessen the waste of the body in work. Poor cooking robs food of these qualities more or less. Poor food has lost them, to begin with. Nice baked pears have fat and heat-making carbon in their rich syrup as truly as a slice of bacon or beef; but if the pears are woody and tasteless to begin with, or are baked watery or dried, the nourishment is out of them, and you might as well eat sawdust and sweetened water. Bread has phosphates and strength-feeding elements, but if it is "slack-baked" or "sad," you turn it into such stuff that only the strongest stomach gains anything from it.

Let us look into this matter of nourishing foods farther.



## HEALTH AND STRENGTH PAPERS.

BY PROFESSOR D. A. SARGENT.

## IV.

## HOME GYMNASTICS.

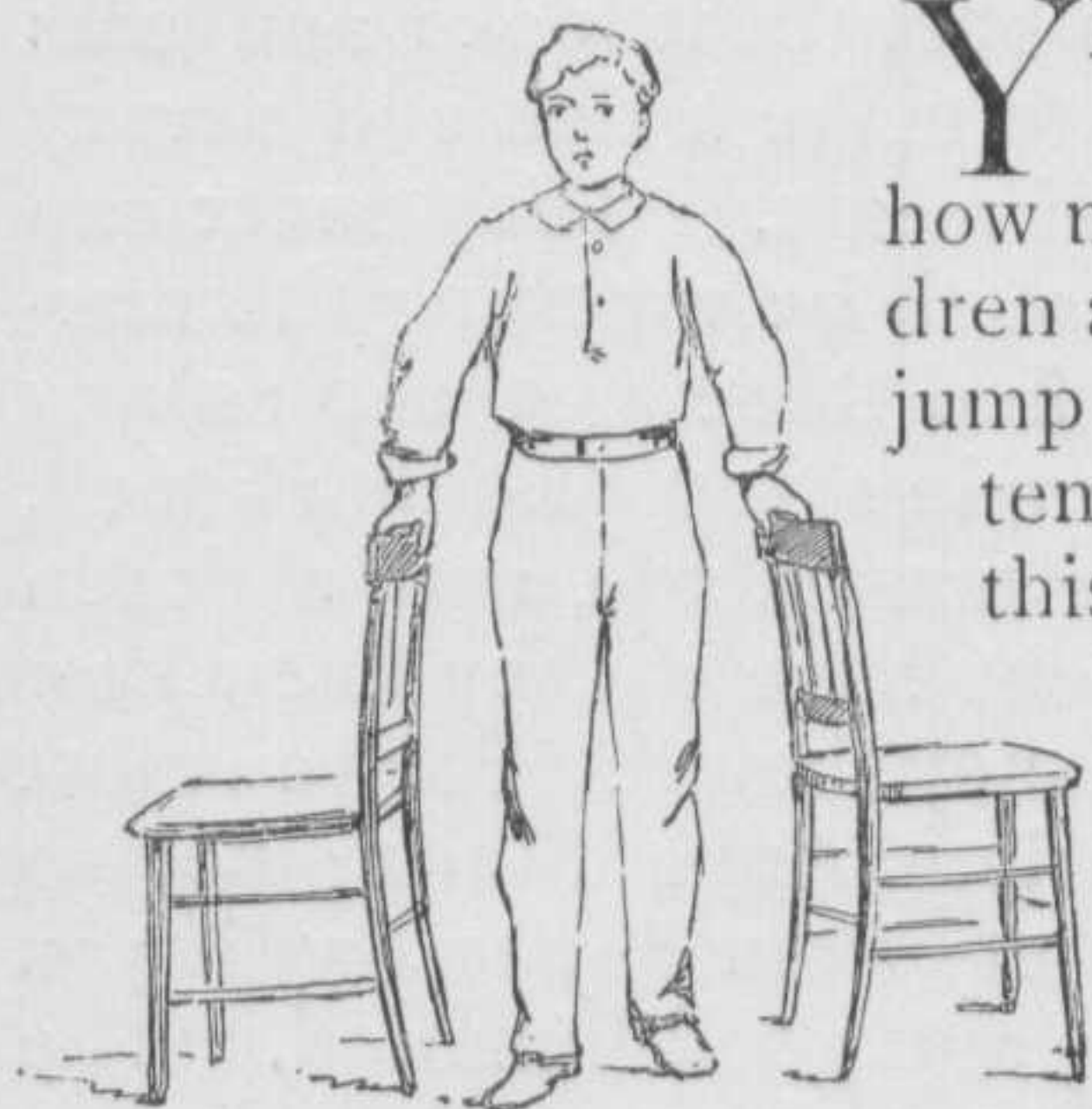


FIG. 1.

**Y**EARS and years ago, a wise old man observing how natural it was for little children and young animals to run, jump and play, founded a system of education in which this first impulse of nature should be taken advantage of.

He had noticed that those children and animals who were most active and had the widest range of movements,

were generally the strongest, healthiest, and best formed.

He had noticed also, a great difference between grown persons living in the mountains and on the plains; between those dwelling in the country and those living in cities.

Moreover, he had noticed that the great difference was mainly a difference in development; that those who had to climb mountains had large and powerful legs; that those who worked the boats in seacoast towns had strong arms and backs; and that those who had been confined to sitting postures day after day were thin and weak, or sickly and fat. He had also noticed that when these people changed their condition in life — that is, when the mountaineer went to the city to live, and the city persons went to the mountains, they changed in strength and development.

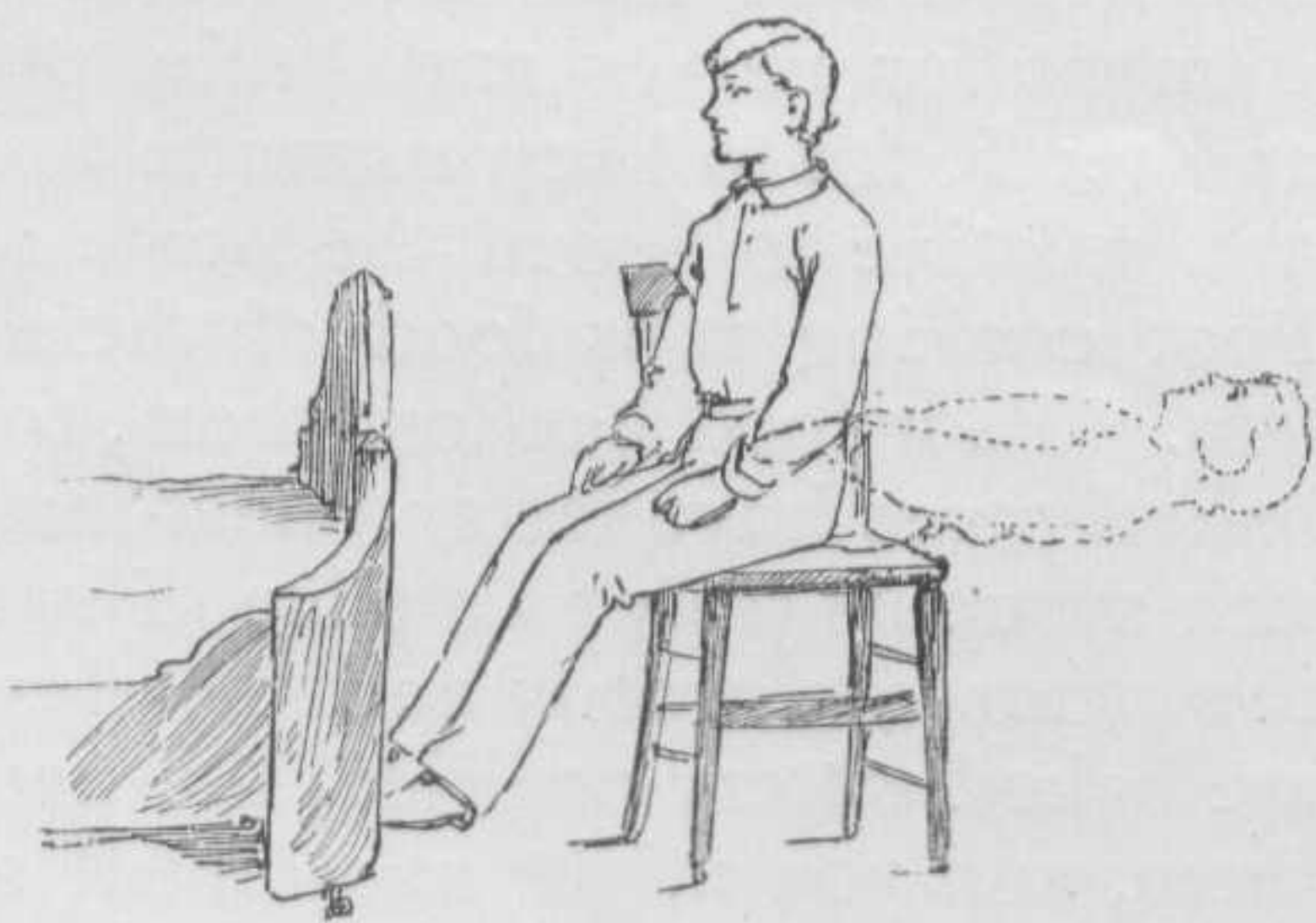


FIG. 2.

From these observations he devised a system of exercises in which the sports of children and games requiring great strength and skill were introduced. In order that the development of the body might be complete and harmonious, a great variety of exercises were practised: running and jumping for the legs, hurling the discus and javelin for the arms and body, wrestling, diving and tumbling, etc., for all the mus-

cles. Where there were special weaknesses, special exercises were devised to relieve them, etc.

This system, in its perfection, constituted the famous gymnastic training of the ancient Greeks. It was practised over three thousand years ago. From that time the gymnasium has been considered the grand training school for the body. As it exists to-day, with its ropes and ladders, rings and bars, swings, poles, pulleys and adjustable apparatus for the development of every part, and treatment of all conditions, it is the place to which we must look for the best results in physical training.

Every city, town and village, should be furnished with its gymnasium. Until that day comes you must make the best of your circumstances. If you are really in earnest even your room furniture will help you. Let me show you something that you can do in the way of home gymnastics.

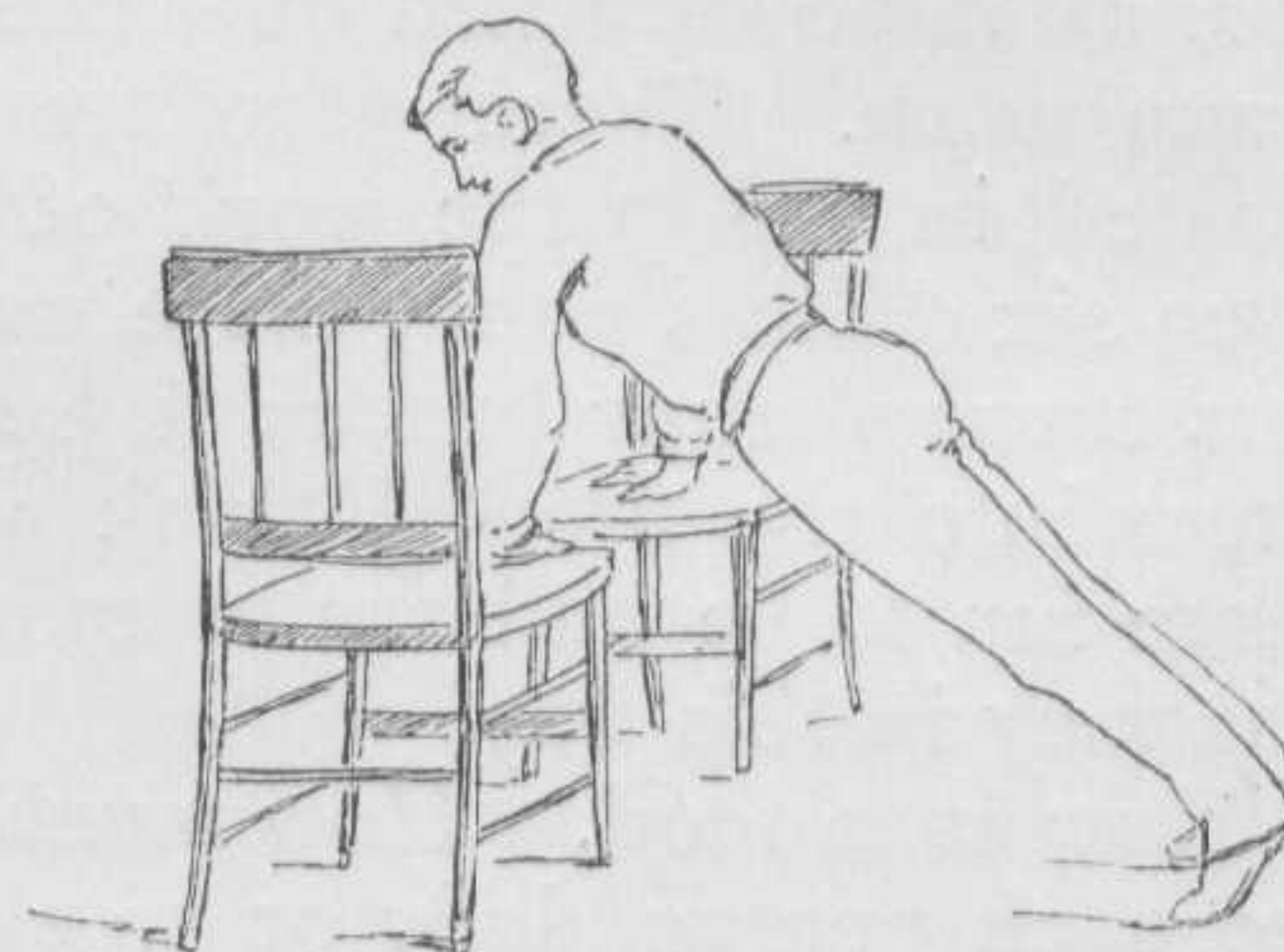


FIG. 3.

*Position I:* Place two chairs back to back about two feet apart. Stand between the chairs with hands on the top of the backs. (See fig. 1.)

*Exercise:* From this position, with body erect, sink and rise by bending and straightening the legs. At the same time bend and take upon them as possible. Vary this exercise by sinking and rising on one leg, keep straight and extending the arms as before. This is a capital exercise for the arms, chest, back and legs, and should be repeated from times morning and evening.



*Position II:* Place one of your chairs about thirty inches from the foot of a bed, and seat yourself in it so that the back of the chair will be at your right or left side. Now hook your toes under the cross-piece. (See fig. 2.)

*Exercise:* Lean backward in the chair, keeping the body straight until it is on a line with the legs, then slowly return to the upright position. If the effort is too great at first, do not go back quite so far. After a while you can lean back until the head touches the floor. Care should be taken that the bed does not move or tip so as to let you over

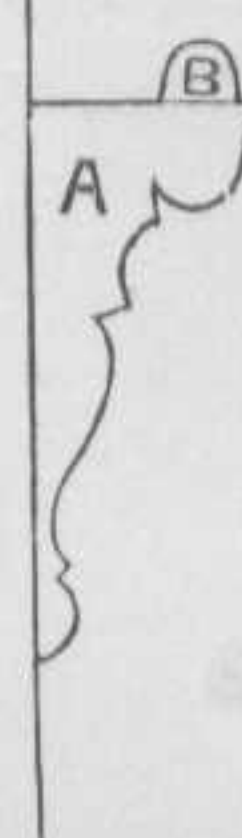


FIG. 5.



backward. This exercise will strengthen the muscles or the front of the body, inner back and legs. It should be repeated only from five to thirty times daily.



FIG. 7.

*Position III:* Place the two chairs front to front, about twenty inches apart. Stand between them and place the palms of the hands on the front piece of the seat in each chair. Now step back with the feet until the body is on a straight line with weight supported by hands and toes. (See fig. 3.)

*Exercise:* Sink and rise by bending and extending the arms, keeping the body rigidly straight throughout. At first it is better to bend the arms but little; after awhile you may allow the front of the body to drop between the seats of the chairs and return to position again. This is an admirable exercise for the chest and arms, and should be repeated from five to fifteen times twice a day.

Get two pieces of wood, each eighteen inches long. Let one (fig. 4 b) be two inches wide and three fourths of an inch thick, and let the other (fig. 4 c) be three inches wide and one inch thick. Round one edge of the larger piece, and nail the two together, as in fig. 1.

Now screw this piece on the woodwork above your closet door, the narrow piece next the wall and both resting on the door-frame. (Fig. 4 a.) If the door-frame has a wide moulding (fig. 5 a) a half rounded piece placed above the moulding (fig. 5 b) will answer every purpose, the object being to get an easy support for the fingers.

*Position IV:* Grasp the cleat above the door (the latter being open, of course) by aid of a chair or stool if necessary.

*Exercise:* Draw your body up until you can touch the woodwork with your chin, then let yourself down to position again. Should this exercise prove too difficult at first, lift your weight partly by the help of your feet in the chair. Repeat this exercise from three to twelve times every night. It will strengthen your arms and chest, and, like all the exercises that have preceded it, will give you a fine preparation for higher gymnastics and athletic sports.

*Position v:* Take a well stuffed chair cushion or a pillow, place it on the floor, and lie at length upon your back so that the shoulders will rest upon the cushion. Grasp the two front legs of an ordinary chair about an inch from the ends with hands downward. (See fig. 4.)

*Exercise:* Inflate the chest, then bring the chair upward, keeping the arms straight as possible, at

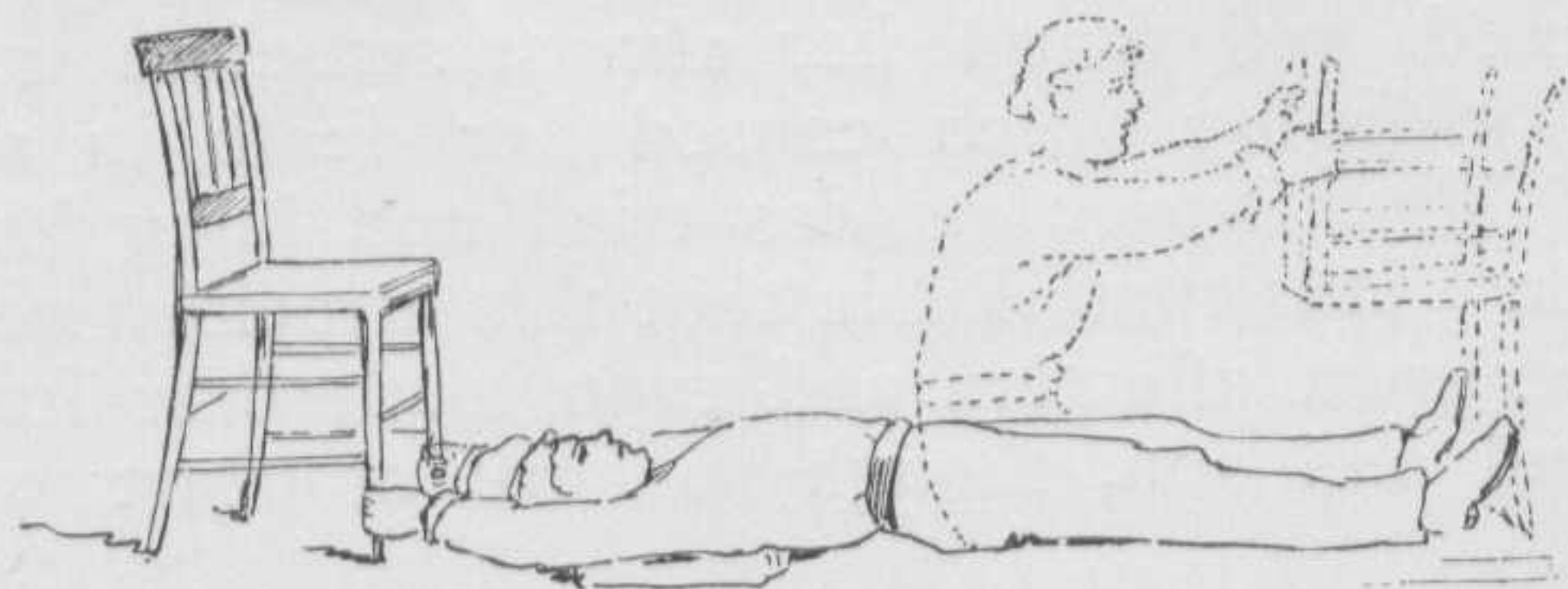


FIG. 6.

the same time raising your head and shoulders, moving the chair forward until the top of its back passes behind the toes. Then return to position and let out your breath, and repeat the exercise from ten to thirty times. This is an admirable exercise for strengthening the walls of the chest and abdomen. Get a piece of clothes line about four feet and a half long, and attach one end of it to a handkerchief bound around the head. Fasten the other end to the top cross piece on the back of the chair.

*Position VI:* Place the front legs of the chair on the knees, having adjusted the line so that the chair and body will be erect at the same time, as in fig. 5.

*Exercise:* Lean forward with the head and body until the line nearly touches the seat of the chair, holding legs on the knees. Now straighten the back and neck, throw back the head and shoulders and make the body as nearly erect as possible, then lean forward again and repeat the exercise. With a light empty chair this exercise can be continued from twenty-five to one hundred times daily. After a little practise a book can be put in the chair in order to increase the weight, then another, and so on until the resistance is as great as can be easily lifted. No exercise is better calculated to strengthen the muscles that hold the head and back erect. If not too warm, a few minutes' rest, lying at length upon a bed or lounge without a pillow or head rest, will greatly increase the benefit derived from this exercise.

## WHAT TO DO ABOUT IT.

ALICE H. "In reading Macaulay's *Essay on Frederick the Great*, I came across this sentence — 'The Princess Wilhelmina was treated almost as badly as Mrs. Brownrigg's apprentices;' and in the *Essay on Bunyan*, Mrs. Brownrigg is again mentioned. I was

unable to find her name in the dictionary, so I decided to ask about this mysterious lady." Mrs. Elizabeth Brownrigg's history appears in the *Book of Remarkable Trials and Notorious Characters* published in London. She was the wife of a plumber, who opened a



sort of private hospital and applied to the Foundling Hospital for girls to be apprenticed for servants, whom she treated with the greatest cruelty. She would whip them over two chairs till she wearied herself with the punishment, and then threw water over them. An apprentice, Mary Clifford, was tied and beaten with a horsewhip or cane, sent to sleep on a mat in the coal-hole, and often locked up without food. She was so cruelly treated that the neighbors interfered, and found her almost senseless from a brutal whipping which caused her death in a few days. Mrs. Brownrigg was tried and hung for the murder. It is remarkable that this atrocious woman showed great affection and even tenderness for her husband and son, though so hard of heart toward others.

BERTHA. "I read in Anna Maria's Housekeeping about a grindstone that could be bought for one dollar. It is just what I want to get for my mamma. Will you tell me where I can find it?" At any of the kitchen furnishing or hardware stores. You will find an advertisement in the last pages of WIDE AWAKE which will be of use to direct you.

ALBERT M. A. "Will you tell me where children's heel and knee protectors are to be obtained?" You will find an advertisement in any of last year's numbers of WIDE AWAKE that will tell you where to order housekeeping goods and children's furnishings.

EDITH J. "Can you tell me how to keep the oil from running down the outside of a lamp? Our lamps are always oily, and kerosene on your fingers is not as pleasant as it might be." Be careful not to fill the lamp so that the oil comes up in the metal rim, and wipe carefully just before lighting.

FLORA E. M. 1. "Some of my friends and myself have had quite a discussion over the standard dictionary. They say *Worcester*, while I supposed *Webster* bore off the palm. Will you please settle the question for us?" *Webster* for spelling, *Worcester* for pronunciation is the general decision about the merits of the two dictionaries.

2. "I have an hour and a half every day for reading. Do you think the time sufficient to warrant me in taking the Chautauqua course, its examinations, etc.?" If you can come fresh and untaxed by other study the time should be sufficient. The Chautauqua course is specially purposed for those who have but a small amount of time to devote to reading.

3. "I would like to read Ruskin's works. What should I, a girl of sixteen, read first, and where can I

get cheap editions?" Mr. Ruskin's small book on *Drawing* will be as good a beginning for you as any, even if you are nothing of an artist, as it leads one to observe nature minutely and intelligently. You might follow this with *Sesame and Lilies*, which contains his fine advice to women. You will get the meaning of Ruskin best by reading his books slowly, a few pages at a time, with a note-book at hand to which you may transfer striking passages. The mere act of copying will assist to fix them in the memory. You will find the cheapest editions by inquiring at any large city bookstore, but you will enjoy reading the fine illustrated English copies from the public libraries. Always read a good author in the best edition within reach.

4. "I oftentimes write stories; now if I should send one to you would you judge it truly and honestly without reference to my age, and tell me whether or no I should keep on writing? My indelible pencil is *horrid!* which accounts for my writing." If the story was not a very long one, I would read and criticise it for you, but the process might not be a pleasant one. It is not good form to write letters to any one with pencil, especially on the cover of a book whose embossing makes the writing still more blurred and trying to the eyes which read it.

JENNIE C. The size of a chameleon varies from three and a half to seven inches. Has any of our WIDE AWAKE readers a specimen of the animal to dispose of? One is wanted for the benefit of a State academy of sciences.

*Dulcis sedecim.* "Please tell me who Tam O'Shanter was?" He was the hero of an old Ayrshire story, which tells that a man riding home very late from Ayr one stormy night, seeing a light in Alloway Kirk, a lonesome wayside church, was curious to look in, and saw a dance of witches with the fiend playing the fiddle for them. Tam was moved to an unwary exclamation at the sight, when the lights instantly vanished, and the whole assembly started in pursuit of him on his good gray mare. He rode fast for the nearest bridge, the belief being that neither witch nor evil spirit can cross running water. Fast as he flew, the witches gained upon him, till just as he reached the keystone of the bridge the foremost and fleetest witch laid hold of his horse's tail. But Meg was stanch, and bore her master safely home with the loss of her own gray tail. So runs the story of which Burns made a poem to illustrate a drawing of Alloway Kirk, in a Scotch volume.

THE WISE BLACKBIRD.





## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### V.

JANE AUSTEN.

WHO was Jane Austen, and what did she write? Should we like her books, and ought we to know them, and are they good stories for girls, and aren't they old-fashioned?"

All these questions some of the bright girl readers ask who want to know about everything. The first I am going to answer as well as I can; to the last I say "Yes, yes," to the "old-fashioned" and all.

If there was no other reason in the world for reading Jane Austen, I would do it because so many persons who are famous in the world of letters have read her books so many times and praised them so highly. I should immediately infer that there must be something remarkably attractive about them, and that if I failed to see it, the fault would be my own. If I did not like them, I should conclude that I was lacking in appreciation; that my taste and judgment were not what they ought to be.

There was Walter Scott, to begin with—I will not try to quote what he says, but he spoke or wrote about her as one of the women who had given portraits of real society far superior to anything men had produced, and that her talent for describing the incidents and characters of ordinary life was the most wonderful he had ever met with, and that there was a finishing off in some of her scenes that was really above everybody else. Some of her novels he read over and over, and almost at the last of his life, when he was sick and worried, he used to turn to them for the pleasure they gave. Macaulay was quite as enthusiastic, and he, too, found inexhaustible entertainment in them; and John Sterling (whose biography Carlisle wrote), and Miss Martineau, who was one of the best judges of books; and Miss Mitford, whose words round up the universal praise in this

way: "I never met any high literary people in my life who did not prefer her to any female prose writer." Ah! I had almost forgotten John Brown, the beloved author of *Rab and His Friends!* He calls her "that excellent thinker, and best of all story tellers," and says she is the only "English writer of fiction" who can be compared to Thackeray in the "power of distinguishing ordinary characters."

I would read them for another reason; because it has been said by one writing of the literary career of Thackeray, that great master in painting human character, that he "has drawn women more carefully and more truly than any novelist in the language except Miss Austen; and it is small reproach to any writer, that he has drawn no female character so evenly good as Anne Elliot or Elizabeth Bennett," which means the higher compliment to Jane Austen's perception and power, and is reason sufficient, if there was no other, for girls to read her books. In this respect she has even been compared to Shakespeare.

Yet after all this, no matter what so many have said, you are likely to be disappointed; you certainly will be if you expect glowing scenes and thrilling incidents. She wrote six novels, one of which, *Northanger Abbey*, being meant to ridicule the fashion of writing so much about castles with trap-doors, subterranean passages and terrible mysteries, is rather stirring in a certain way, compared to the rest. It is immature, and therefore perhaps a good one to begin with, and you will make the acquaintance of Catherine Morland, who is ingenuous and pleasing, and drawn to the life, but ridiculous with her curiosity and head full of imaginings—a foolish girl; and there are several more of them in the other books; however, you will meet some fine ones of the sensible, right kind before you get through, and they are "wholesome and sweet," as the atmosphere of all her stories is; there is Fanny Price, for instance,



in *Mansfield Park*, Anne, in *Persuasion*, Jane and Elizabeth Bennett, in *Pride and Prejudice*, and, not to mention any others, Emma, in the novel of that name. This last girl has an amusing weakness which you will find out in the first chapter, but she is a very interesting acquaintance, and the book is so attractive that I predict you will not care to put it by until you have read it through, although it is not much that happens, and it is nearly all in one little village too, among half-a-dozen ordinary kind of folks; but it is admirably constructed and managed, and a capital story.

There are so many nice girls in her stories, sensible,

in her special way to nearly all other writers of fiction. She had the most remarkable faculty of showing all the little complexities and traits of character, not only in the individual, but as other persons were affected by them. She put her people on paper as they actually were, and there they talk and do things the same as your neighbors would talk and do under the circumstances. We see that here is "human nature" that so much is said about; we say to ourselves that if these books had not been written so long ago and so far away, we should be positive that some of our acquaintances were in them. We know some silly women enough like Mrs. Bennett to be



JANE AUSTEN.

unaffected, simple, easy, and so bright, and spirited, and obliging! Everybody likes them. And as girls are girls the world over and in all ages, and as Jane Austen's are not from her imagination, but from life, you are quite sure to meet some of your own prototypes, notwithstanding the fact that they lived in an English town and towards the close of the last century or the beginning of this.

You must make allowance for the difference between our customs and those of the English, for their ideas about caste, and for the match-making which is the business of so many mothers and friends in each of these stories, and then you will be ready to understand what it is that makes Miss Austen so superior

the same person; we too have a little Miss Bates who talks on and on about nothing, and a gentle, fussy old Mrs. Woodhouse; indeed, we are surrounded by her people, and so is everybody.

It is a transcript, an accurate reproduction of human conduct as it appears in every day life, with the very nicest discrimination of what it is that makes one common kind of person different from another who is only common; something that some of the best novel writers have not found it possible to get into written language. That is where Jane Austen's power lies; it looks so simple a thing to do, but when one tries, the result is a failure. *She* did it, and Walter Scott, who said it was a faculty denied him, called her a



"wonderful creature" for it, and Macaulay used almost the same words. It is far easier to write about peculiar individuals than it is about ordinary men and women; the simplest material is what it requires a genius to manage.

Her stories are long and move so leisurely that some of her readers get out of patience with her; but they are not of the kind that you can skip, and if you like them well enough to keep on to the end, you will like them well enough to think you will sometime read them again: one cultivated woman says she reads them once a year. The titles are not inviting, not "taking," as publishers would say, and there are no fine passages: it is like plain sewing. There are not many persons concerned: there are comparatively few descriptions of scenery, of places, dress, or even of hero and heroine; but what there are, you will find to be excellent, admirable, and to the purpose: there is no moralizing; nobody who has a mission or a "hobby;" there is hardly a genuine villain. You will wonder, then, what they are all about, and how it can be that they are interesting; and if you are so unfortunate as to be one of those whose taste has been spoiled by the modern, sensational novel (all wrong in its influence), you will, perhaps, never get beyond the first chapter, and so far as you are concerned, this paper might as well have remained unwritten.

Jane Austen was the daughter of an English rector in the parish of Steventon (in the same county where Gilbert White's home was), and there this bright girl was born December 16, 1775, and there in the old rectory she spent twenty-five years of her life. It was a house full of children a good part of the time, for besides the little Austens who belonged there, many cousins were always coming for a week or a month, or longer, and there were pupils whom the parson took to help out his income.

Jane had a sister Cassandra, and five brothers, two of whom afterwards became admirals in the British navy, and there was not a child of them who was not keen-witted, lively, and full of good, healthy, innocent fun. They were well brought up, for the parents were persons of education and refinement; and they had such a strong family feeling that they liked to be together and have their good times at home. It seems almost the ideal brother and sister life, so far as we can get a glimpse at it; they were never at a loss what to do to amuse themselves, for on rainy days they "got up" little plays and tableaux which they enacted in the barn in summer, and in winter they used the dining-room; and if everything else failed, Jane told fairy tales and nonsense stories which she invented on the spot; and if that is not one of the happiest and most happy making faculties anybody can possess, I am altogether mistaken.

In fine weather they had all out-of-doors, and they were out-of-door young folks. To the rectory belonged a nice lawn with shade trees, a rambling kind of garden, and a terrace and shrubbery; there

were near meadows and two favorite walks leading to places where violets and primroses grew. With this pleasing rural scenery around it is strange that Jane never wrote much of such things in her books; but what took the greatest hold on her was the life of men and women of the country gentry of the neighborhood among whom she must have visited more or less. How keenly she must have used those eyes of hers, and what a sense of the ludicrous she had! I have wondered if she was not like her own Elizabeth Bennet in her spirit and humor, her archness and self-possession, her charming manners and beauty. She saw everything, and understood all the little manœuvrings and jealousies of that small circle; but, be it said to her credit, she took note of the pleasant things also, and though she had a liberal spice of mischief in her composition, her humor is good-natured; not of the kind that wounds, or cynical, like Thackeray's. She had a very cheerful temperament, and we cannot believe it was not in her to say sharp or hateful things.

Jane was certainly very pretty; the picture of her which Cassandra made shows that, as well as that Cassandra was quite a clever artist. She is taken in her early womanhood with a cap on, after the fashion of the times; a becoming, half-transparent cap as coquettish as can be, from beneath which her curls come in sight, and a short-sleeved white gown cut square in the neck, where a muslin "tucker," as they used to call it, is gathered in, finished with a ruffle at the throat. It would not be strange if the partial sister made a flattering sketch, but that face could not have been otherwise than sunny and full of intelligence. She has eyes that would be sparkling with vivacity if she had not put on a thoughtful expression for the occasion, and she looks very sweet and noble. You can see that she must have been sincere and affectionate, and that there was good cause why her relatives were so attached to her.

There is not so much known about her life as we wish there was. It flowed smoothly along, free from household cares or anxieties about money; and in that enviable frame of mind which contentment gives, she wrote a story for her own amusement, and then another, kept them by her a long time before she offered them to a printer, and when they appeared it was without her name, and all the reading world around London set to guessing the author, which she enjoyed extremely. She always waited about publishing her novels, though they were written rapidly. *Sense and Sensibility* was not published for thirteen years after she wrote it, and *Pride and Prejudice* sixteen years after.

She lived four years at Bath, which she made the scene of some of her events, spending a little time, too, at a seaside resort — Lyme — where incidents of one of her best novels take place; then with her widowed mother and sister she moved to Southampton, at last returning to the country, to a little cottage in Chawton, the surroundings of which were rural, like those



at her birthplace. There, in the retirement she liked, her writing which had been interrupted was begun again, and she had prepared three books when her health failed. Her friends took her to Winchester near by for medical treatment, where she died in the arms of her beloved Cassandra, July eighteenth,

1817, and was buried in Winchester Cathedral.

Her books are *Sense and Sensibility*, *Pride and Prejudice*, *Northanger Abbey*, *Mansfield Park*, *Emma*, and *Persuasion*. The fullest biography is by Jane Austen's nephew, James Edward Austen Leigh. This has been condensed and an outline of her novels prepared in one volume, by Sarah Tytler.

## THROUGH A MICROSCOPE.

BY SAMUEL WELLS.

### V.

YOU have read or been told that if you look at a drop of water through a microscope you will find it full of animalculæ, and showmen will sometimes exhibit water containing *entomostraca* hopping about, and will try to persuade you that all water looks in the same way.



ROTIFER VULGARIS.

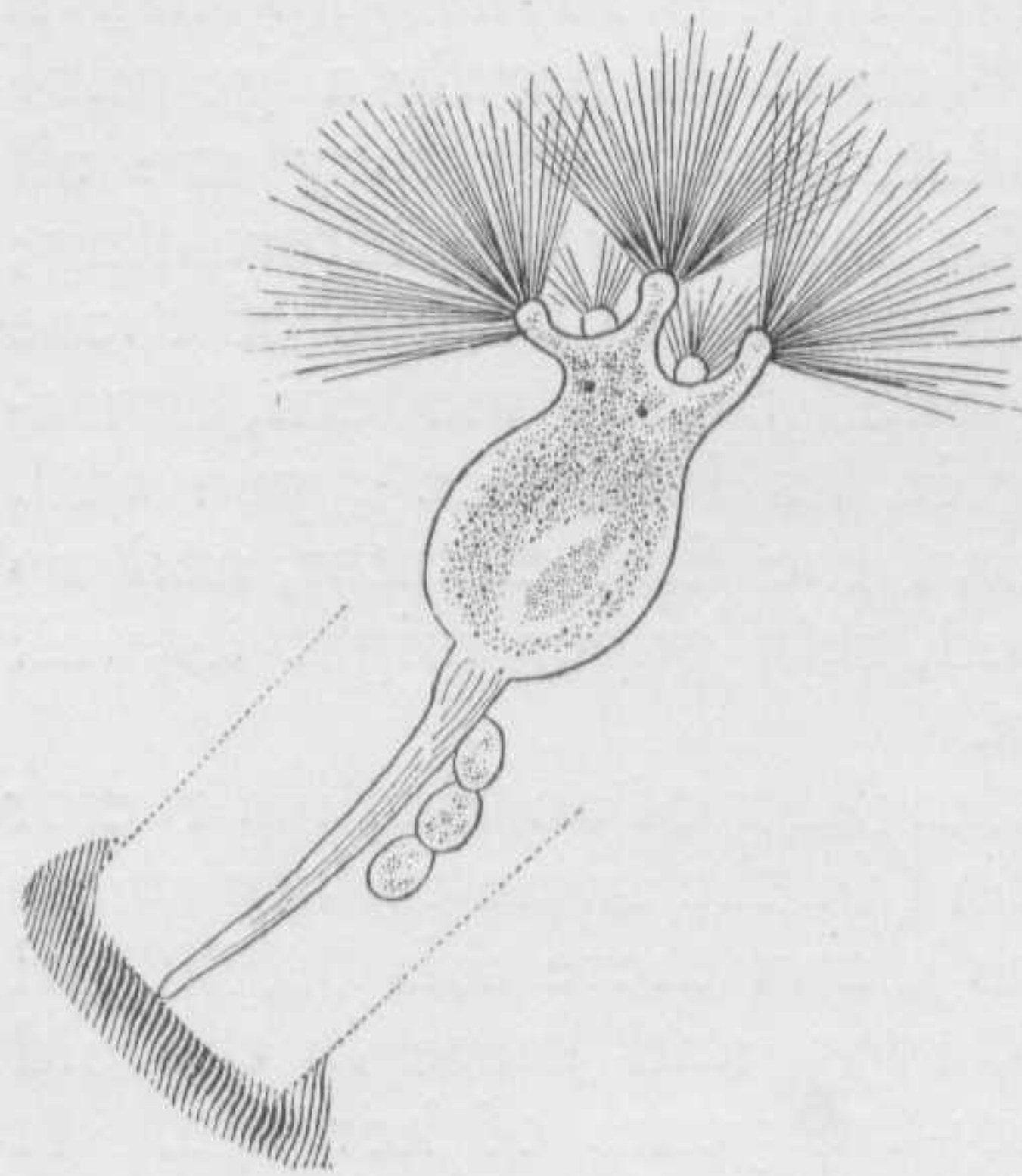
But this is a common mistake, as you will soon find out for yourselves. Water such as is commonly used for drinking purposes, whether it comes from a well, spring, river, or pond, contains but little animal or vegetable life in proportion to its quantity; you may place drop after drop under the microscope without finding anything visible, and you can only tell what is in it by filtering a great deal of it. Water standing in ditches or pools for a long time, becomes full of growth of various kinds, and is then so discolored and slimy that no one would think of drinking it.

Let us return to the little bottle which you filled with Cochituate filterings last month. Take a little from the bottom with your dipping-tube; put it in the live box and examine it with a half-inch objective. You will see many forms that are strange to you, and we will suppose that the first is that of one of the rotifers. These little creatures are called by this name because of two Latin words meaning wheel-carriers, for on their heads they have an arrangement which looks like a wheel, sometimes in rapid motion.

The most common kind is called *Rotifer vulgaris* (fig. 1), and is a very interesting and elastic being. Sometimes he is gloomy and draws himself in so that he looks like a ball; then he



CARAPACE OF ANURAEA STIPITATA.

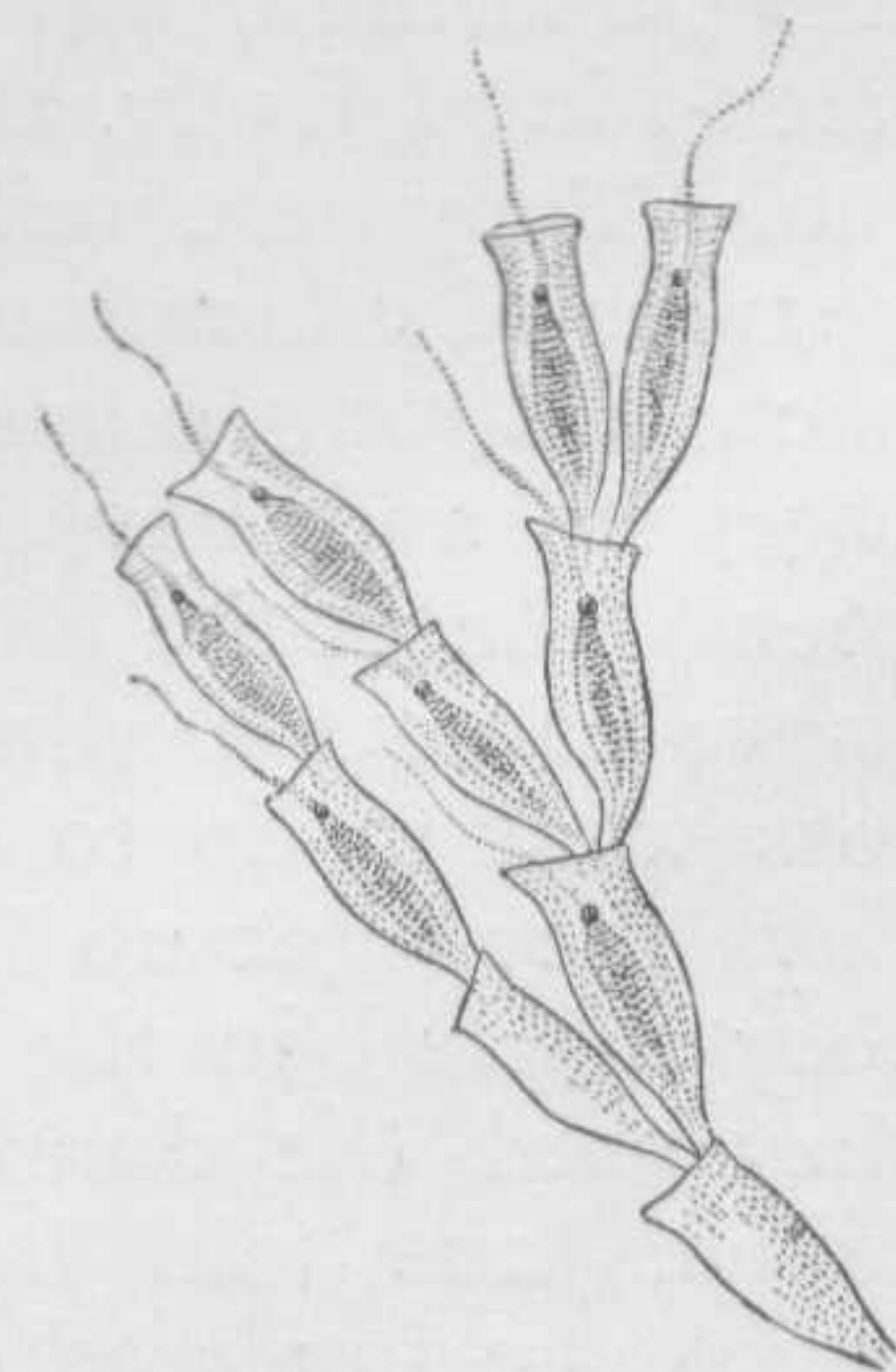


FLOSCULARIA ORNATA.

will stretch out full length, and opening his wheel, shoot through the water with great speed. Again he will attach his tail to some fixed object, and by the aid of his wheel draw a rapid current of water through his mouth; it is thus that you can best observe him, and by and by you will discover that the apparent wheel is only a result of the rapid sweeping movement of the long hairs or cilia which fringe the opening in the top of the head. Through this opening the water passes, the rotifer gathers his food from the current, and the food passes into the mastax, where it is ground by the masticating apparatus, which is easily seen in motion.

There are several different rotifers found in Cochituate water; among them the most common is the *Anuraea Stipitata*. (Fig. 2.) It is like a turtle, with a shell, or carapace, beautifully ornamented. You will see plenty of these empty shells, and sometimes you will find one inhabited, when you will see that the creature has a bright red eye, and several bundles of cilia, in front of the projecting spires.

One of the families of the rotifers is called *Floscularia*, because it resembles a flower; it is attached at the base to small plants, or algæ, and occupies a sheath so transparent that it is hardly



DINOERYON TORTULARIA.

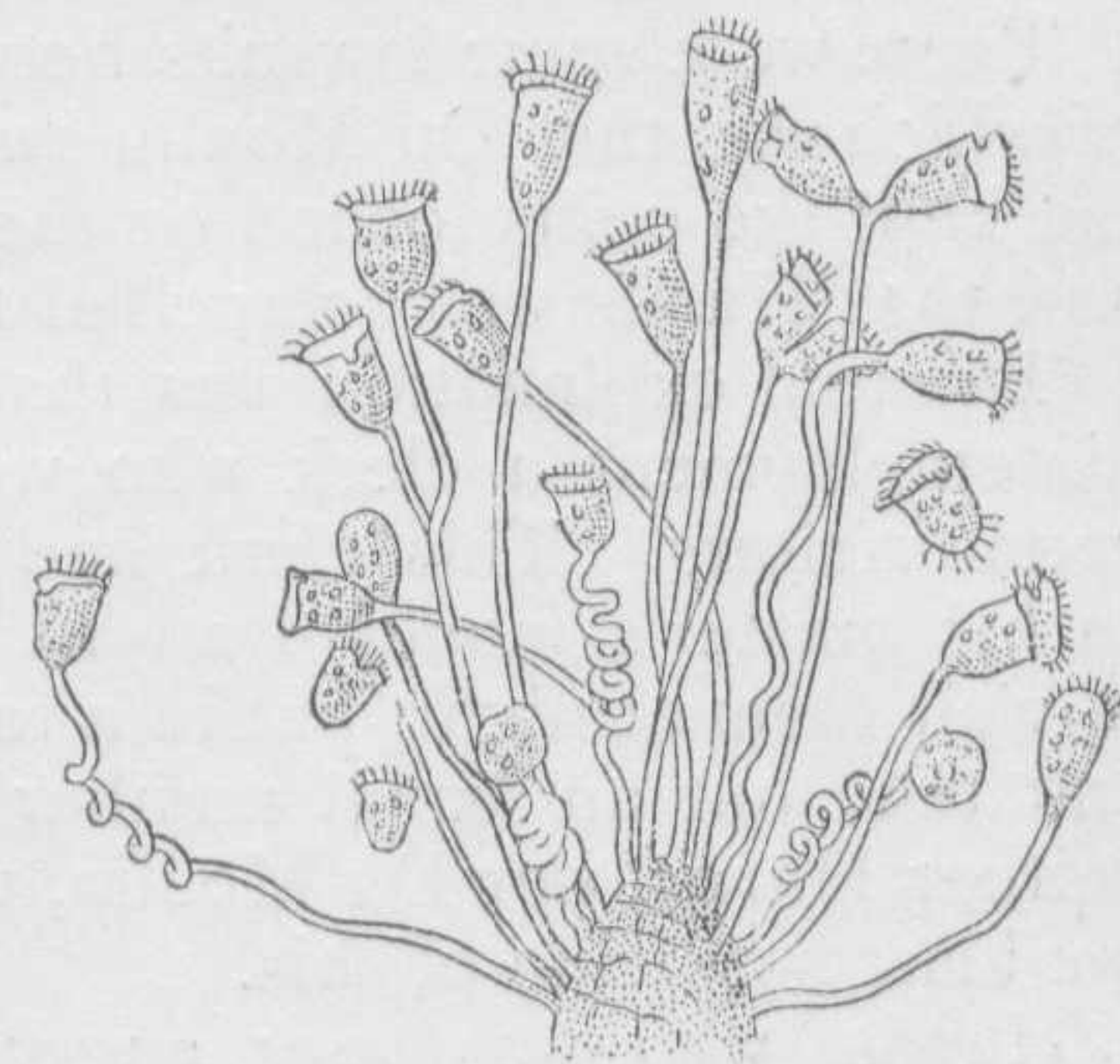


visible. One species is occasionally found in the Cochituate, the *Floscularia ornata*. (Fig. 3.) It is a beautiful object, with its elongated radiating cilia, which remain quiet, and do not vibrate. The specimen figured has three eggs attached to its stem.

You will find other rotifers in the Cochituate, some formed like vases, others with long spires, but all graceful and beautiful. The *Dinobryon Tortularia* is sometimes very common in this water.

In October, 1881, when the taste of the water was very bad, the *Dinobryon* was very abundant, though we do not know that it had anything to do with the bad taste. You will see by the figure, that it is like a tree, with an individual of the family at the end of every branch. Each one has its own organs of existence, although attached to its brothers by its stem. Each has a bright red eye, and a long slender whip, called a *flagellum*, with which it lashes the water, and when all the *flagellæ* are in motion, the whole tree swims about. The individuals are very small indeed, and it will take your best objective to show the *flagellum*.

Another tree-like group is that of the *Vorticella*, of which you will sometimes find in the Cochituate, the species *Vorticella nebulifera*. Each animal is at the top of a stem, and this stem has the peculiar property of being able to coil up and draw its head down close to the bottom. This appears to be a defensive movement, for whenever a big ugly creature comes by, down go the whole family so quickly that your eye cannot follow the movement. Sometimes they will all bob down when you tap the stage of the microscope so as to jar them. At a certain period of its life the animal suddenly leaves its stem, and goes swimming about with great speed.



VORTICELLA NEBULIFERA.

## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

### V.

#### AN UNFORTUNATE FRENCHMAN: CIRCUMSTANTIAL EVIDENCE.

WE often read of a person's being condemned upon "circumstantial evidence." What is circumstantial evidence? All readers know what is meant by "direct testimony." When Guiteau was tried there were Mr. Blaine and several other persons who testified that they were at the depot at the time, and saw Guiteau fire the pistol shot at President Garfield. This is an instance of direct testimony, which consists of statements of witnesses who saw the crime committed.

Often, however, persons committing crimes take care not to be seen. In such cases the detectives and policemen collect all the facts or circumstances that can be learned about the offence or the person suspected, and if these circumstances are such as to show that no one but he can have done the deed, and that he must certainly be guilty, he may be punished, although no one saw the act done. Evidence which consists of collecting various suspicious facts and connecting them together to prove a person guilty, is called "circumstantial."

A very interesting story entitled "The Goldsmith of Padua" is probably founded upon a trial of a Frenchman who, about a century ago, came near being hung, for counterfeiting, upon circumstantial evidence. Various persons to whom he sold goods complained that he came to them and charged them with having paid him in counterfeit money, and made them take back bad gold pieces which he said he had received from them, and give him good ones in exchange. At length this happened with one of his customers named Harris, who had paid Du Moulin seventy-eight pounds in gold pieces. When the payment was made, Du Moulin said that he thought some of the gold pieces were bad, but Harris assured him that all were good, and he accepted them. A few days later, he brought six counterfeit pieces to Harris, and said:

"Here are six of the coins you paid me. They are counterfeit. I wish you to take them back and give me good money."

Harris examined the coins, and said:

"I am positive that neither of these was in the money I paid to you."

But Du Moulin answered:

"These are some of the very coins I received from you. I put your money in a drawer by itself, and it



was kept locked up there until I came to pay it away, when these pieces were found to be bad. I am positive they are the same."

There were some lawsuits between them, the result of which was that Du Moulin swore positively to having kept the coins locked by themselves all the time, and that Harris was compelled to replace them.

The real explanation was that Du Moulin had in his employment a clerk who was one of a party of counterfeiters. This clerk had procured a false key to his master's money drawers, and was accustomed to visit them at night, put in a few counterfeit pieces, and take out an equal number of good ones. But neither Harris, nor Du Moulin, nor any one else had the least suspicion of this.

Harris, who was very angry, believed that Du Moulin was secretly a counterfeiter, and that he had contrived the plan of charging his customers with paying in false money, as an ingenious way of getting the coin which he made exchanged for good. He made a complaint. Du Moulin's drawers were searched, and behold! a good deal more bad money was found, together with some counterfeit tools. Then every one believed that Du Moulin was guilty. He was tried, and upon this circumstantial evidence, was found guilty. He could not explain how the money and the tools came to be in his drawers. But very fortunately the wicked clerk was detected just in season to save the master's life; and he confessed his contrivance for exchanging his counterfeits, and that when he heard that the officers were coming to search the drawers, he put in some of his tools to make the circumstantial evidence against his master stronger.

This illustrates one great danger in trusting to circumstantial evidence. It is that possibly some malicious person may have contrived the suspicious circumstances in order to throw guilt upon the accused man.

In the days of highway robbers, the landlord of an inn was wont to ride forth at evening, and rob travellers; and one night a man whom he had just robbed came to his inn and told the people who were there, how he had been stopped on his way, and despoiled of a purse of twenty guineas.

"But," said he, "my guineas were all marked."

When the landlord, who was in the room, heard this, he trembled and turned pale, for he had paid away one of the guineas, and he thought: When the person to whom I gave that marked guinea hears of the robbery, he will disclose that I gave him the guinea. What shall I say then? He forthwith plotted a case of circumstantial evidence against one of the waiters of his inn. He crept into the waiter's

chamber and hid the purse and the nineteen guineas in the pocket of the waiter's clothes. He then told the gentleman who had been robbed this fictitious story:

"My waiter has lately behaved suspiciously, particularly in showing gold pieces which we do not know how he can have earned. This very evening I gave him a guinea to get it changed. He was gone a long time, and returned saying that no one would give him change. But the guinea which he gave back to me was not the one I had handed him; it was marked as you say yours were. I did not think much about this at the time, and managed to do without the change, but paid away the guinea."

After he had said this, the waiter's room was searched, and the purse and the nineteen guineas were found; and in due time the man who had the twentieth brought it back, and corroborated the story that it had been paid to him by the landlord. Every one believed the poor waiter guilty, and he was hung for the robbery; but about a year afterward the landlord confessed.

There are accounts of a number of cases like this, in which a thief or an enemy has hidden stolen things in an innocent person's trunk or clothing, and then charged him with having stolen them. And even when there is no such malicious plot, it often happens that circumstances make a person appear guilty when he is innocent.

There was a trial of a Mr. Mellon for poisoning his wife, but at the last moment it was discovered that she took the poison of her own accord, because she thought it would make her handsomer. This trial has been written as a novel called *The Law and the Lady*.

There was once an innocent man tried who was only saved by the fact that the real criminal was upon the jury, and he would not consent to a verdict of guilty. This trial is the basis of a novel called *Live it down*.

*Eugene Aram* and *Sir Theodosius Boughton* are noted novels founded upon cases of false circumstantial evidence.

To allow circumstantial evidence is absolutely necessary, for if it were prohibited entirely, nearly half the crimes would go unpunished. But experienced officers and lawyers are very careful how they trust it, unless it is very clear and strong. Still more ought we to be careful of believing persons to be guilty when we have only heard a story of suspicious circumstances; for there may be some explanation which no one has suggested, but which will show the suspected person innocent.



## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

## V.

## HOW TO MAKE A TOOL CABINET.

NOW that you've got some very good tools, it is time you knew how to take care of them as well as to use them.

The best tools will grow rusty and dull, and shabby, also, even if they don't hide away out of sight just when you most want to use them, unless you have a proper place to put them and *always remember to put them in that place when you have done using them.*

I suppose you think you must have a tool chest for this; now a tool chest is a very good thing if you want to carry your tools on a journey, i. e. if you are a city boy and want to take your kit up into the country and have the tools safe from jarring under the hands of the baggage-smashers; but I've found that a tool chest isn't as handy to have in the workshop as a tool cabinet; so I'm going to tell you how to make a good tool cabinet with less expense of money, material and labor than a tool chest would require.

But you must be more exact and careful in measuring and cutting than you had to be in making the sawhorse and bench. In getting your materials, try to have the boards fully one foot wide and three fourths of an inch thick. It is easier to make estimates on these dimensions, and foot boards are usually the easier to obtain; so all the measures for the cabinet are made with reference to these dimensions. If you happen to have boards that are wider or narrower, you must do a little figuring on your own account and make the proper allowance.

For a tool cabinet three feet three inches long and two feet wide, which will hold all the tools on the list given in the first paper and leave room for several more that you will be likely to own by and by, you must have one six-foot board fully twelve inches wide and three fourths of an inch thick; one seven-foot board, twelve inches wide, one half inch thick; one nine-foot board, twelve inches wide, one half inch thick; also a number of three fourths inch screws which you are supposed to have in stock; one pair brass (or iron) hinges for three fourths inch board, and a hook for fastening, unless you prefer a lock.

Take three fourths inch board (the one six feet long), plane both edges; then by aid of chalk line and splitting-saw, cut off a strip two and one half inches wide, running the whole length of the board.\*

The board that remains should be nine and one half inches wide. Smooth the edge with plane enough to remove the roughness left by the saw; then cut off another strip two and one half inches wide like the first. Smooth the edge of the remaining seven-inch board; then divide this seven-inch board into two even strips which will be six feet long and about three and one half inches wide, perhaps a trifle less, from the loss in planing.

All these strips will have one edge that has been planed and one left rough by the saw. If you lay them together you will find that you have two pairs of strips; one pair two and one half inches wide, and one pair three and one half inches wide. *Each pair* must be alike in width, otherwise the cabinet will be uneven and lobsided; so before going any farther lay the strips together and plane down any inequalities.

Now take one of the three and one half inch strips with try square and block plane. Square one end; measure three feet three inches from squared end and allow one eighth inch for waste in cutting.\* Cut off square with cross-cut saw. Square end of piece cut and also of piece remaining. Measure twenty-two and one fourth inches and cut and plane as before. Do the same with the other three and one half inch strip. You have now two sides and top and bottom of main part of cabinet, and some small bits left for which we shall find a use; i. e. you have two pieces three feet three inches long and three and one half inches wide, for sides, and two pieces twenty-two and one fourth inches long and three and one half inches wide for top and bottom.

Now take the two and one half inch strips; cut three feet three inches off each, also twenty-two and one fourth inches as with the others. Each set of pieces must be alike in length and width; you have two pieces three feet three inches long and two and one half inches wide, and two pieces twenty-two and one fourth inches long, two and one half inches wide; these are for sides, and top and bottom of door of cabinet. Lay these four pieces aside while we get ready for the back of the cabinet and front part of door.

From the seven-foot board (after planing and squaring one end) cut off three feet three inches; plane the ends square and cut off another piece three feet three inches.†

From the nine-foot board in the same way cut two

\* I do not explain again how to use a chalk line and a splitting-saw, for you ought to thoroughly understand that if you have read the other papers and made the sawhorse and workbench yourself.

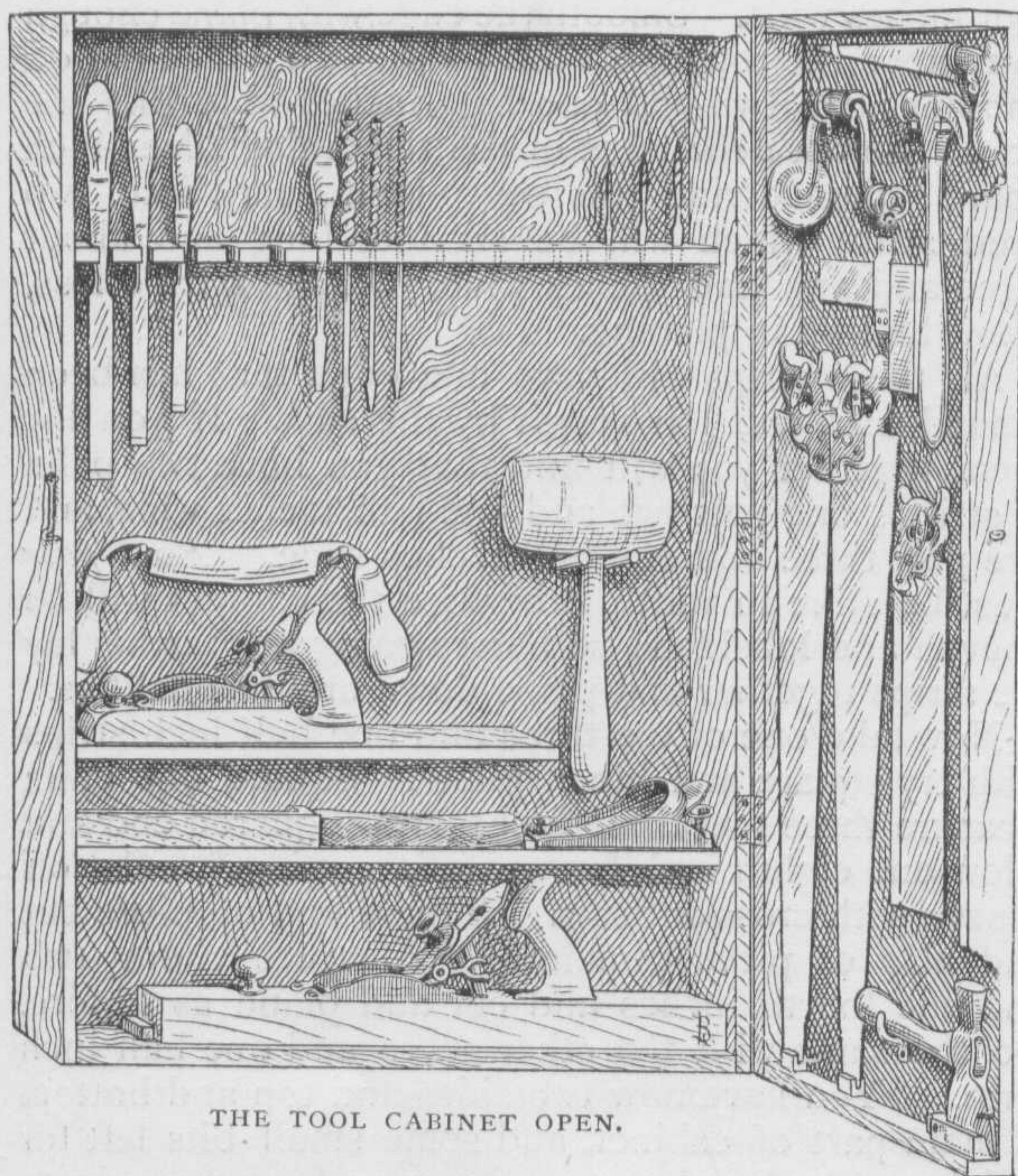
\* Where accuracy is required always allow one eighth inch for waste in sawing; draw line and saw *on* the line and plane off any thickness over and above the measure required.

† Always remember to square and plane edges *before* measuring from them.



similar pieces three feet three inches ; smooth edges, planing off as little as possible.

The piece remaining will measure about two and one half feet in length; from this cut off a piece twenty-two and one fourth inches long. Saw strip three and one half inches wide, which to save confusion we will mark *A*; plane edges, cut off another strip two and one half inches wide; mark this *B*.



THE TOOL CABINET OPEN.

Next a strip three and one half inches wide; mark this *C*. Cut *C* so as to measure seventeen and one half inches in length.

The cabinet is now mostly cut out; the next step is to put it together.

Take pieces for sides and top and bottom of cabi-

net. Lay two sides parallel at a distance of twenty-two and one fourth inches apart; put top and bottom in so they will be flush with end of sides. Nail the sides on to ends with six or eight-penny nails. Take care to keep the corners square, as they will be if the edges are even and kept flush.

Before nailing on the back test the squareness of the frame in this way (unless your eye is very accurate; even then it is a good thing to get in the habit of measuring exactly): measure the diagonals from the opposite corner. If the measures are alike, all right; if, however, one diagonal be longer than the other, make it right with gentle, steady pressure on each corner with both hands. When the diagonals are exactly alike the corners will also be right angles. Now lay on two of the two and one half inch pieces (those three feet three inches long and one foot wide); be sure and keep all the edges flush and nail firmly.

Do the same with pieces prepared for doors, and you will find you have two shallow boxes three feet three inches long and two feet wide (outside measure); one will be three and one half inches deep, the other two and one half inches deep.

Now take piece marked *A*, which is for a shelf in the cabinet; measure and mark six and one half inches from right hand end (this is the length for the small plane); then measure and mark another one half inch beyond this point; from this *last* point measure length of your oilstone, which is probably six or eight inches. The space remaining will make a sort of box, or tray, for rule, chalk line and reel, pencils, etc., when you have made some use of the bits of wood you had left after cutting the shelves.

In the one half inch space between place for plane and oilstone put a little block one half inch wide and one inch long. This will serve to steady both plane and oilstone. At the end of space for oilstone nail a strip an inch wide across the shelf, and a similar strip in front. This makes one side and front of tray; the other side and back will be formed by the cabinet itself.

(TO BE CONTINUED.)

## WAYS TO DO THINGS.

BY ERNEST INGERSOLL.

### XV.

#### HOW TO BUILD A WOODEN TENT. (Continued.)

THE braces are intended to serve the same purpose as the guy-ropes of the ordinary wall tent, and are three in number on each side. They consist of stout

sticks (two by four inches is a good size) long enough to reach the ground from the top of the wall (five and one half feet in the present case) at an angle of forty-five degrees. At the upper end, underneath, which is beveled to stand flat against the face of the wall, the brace is armed with a strong hook. This hook sets into an eye inserted into the top of the outside



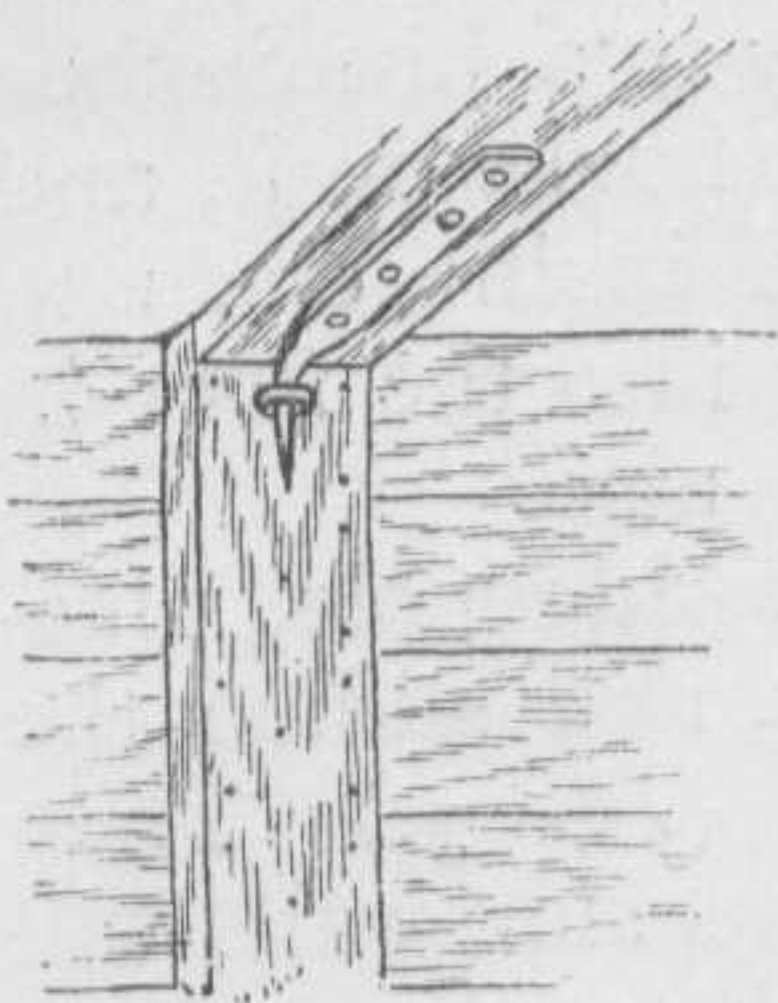


FIG. 6.

cleat, just as the rafters are hooked to the ridgepole. At the lower end, which also is beveled off to fit the ground, is fastened a large ringbolt. This is on the upper side, so that when the brace is in position, the ring lies flat on the ground beyond it, and through it is driven a barbed pin of iron. These braces not only hold the wall from sagging out, but equally prevent it from pulling in, which is just as great a danger. How they are arranged is seen at a glance in *fig. 7*.

There is also another brace which goes across from the corner of the side wall over the doorway to the upright, where it is hooked into an eye placed six feet above the ground. This cross-brace forms a lintel to the door, and serves to make solid the otherwise somewhat shaky end of the right-hand siding.

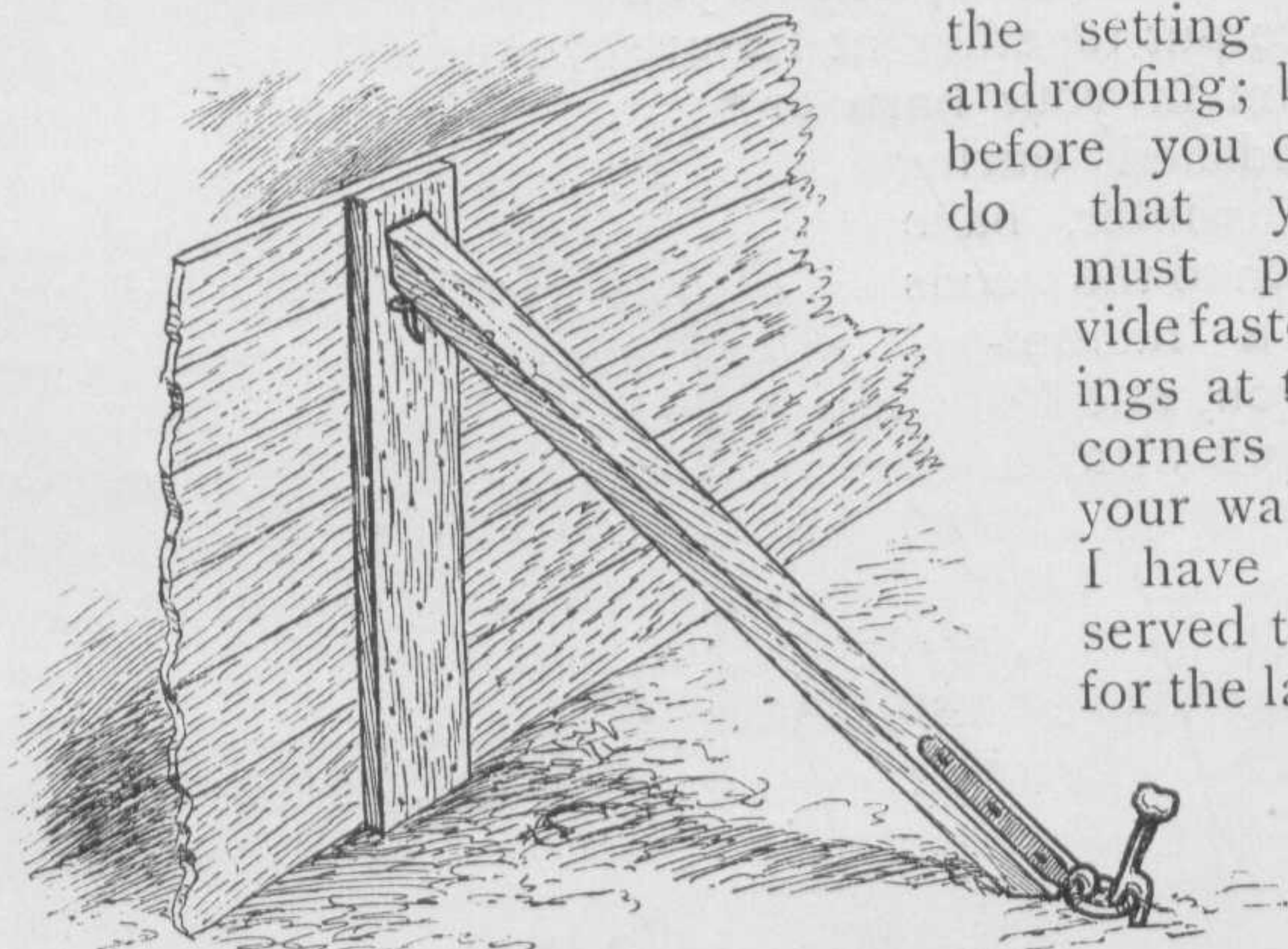


FIG. 7.

since it is the most difficult bit of mechanism.

Go to a blacksmith and have him forge for you six pieces of iron of the shape shown in *fig. 8*, each about an inch and a half wide, and an eighth of an inch thick; the shafts, or straight ends of three of them, should measure six inches from the point marked *a*, while the shafts of the others should be nine inches in length, the elbow being alike in both cases. In the shaft should be punched two holes big enough to pass stout bolts through; but in both sizes these holes should be within six inches from the straight end. Having pro-

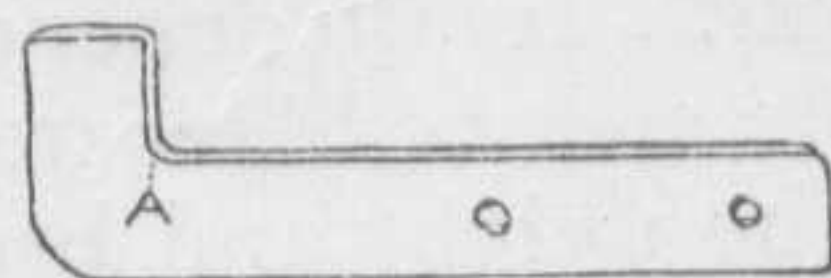


FIG. 8.

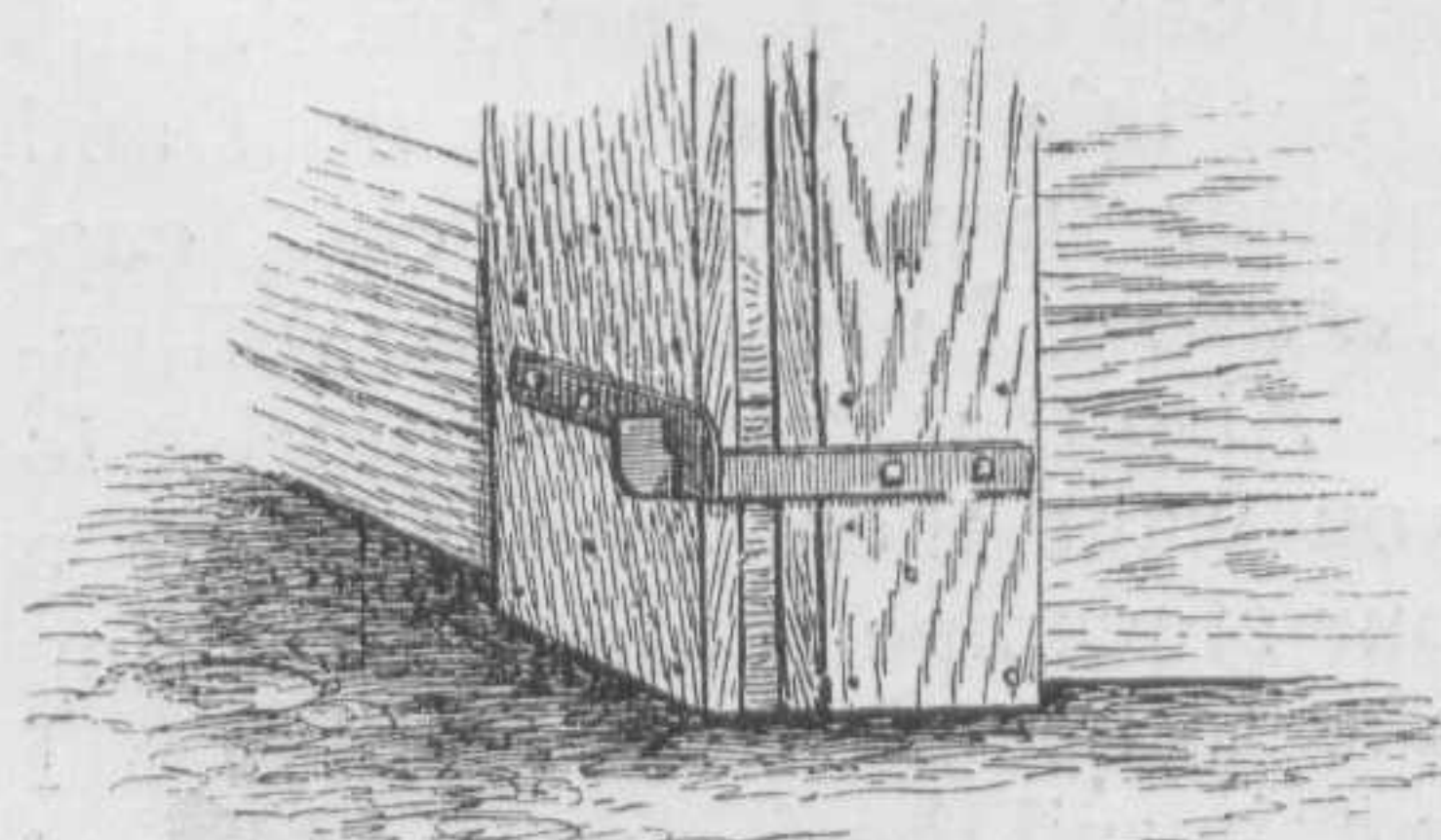


FIG. 9.

vided yourself with these bent irons, bolt one of the *short size* upon each end of the *outside* of the *rear* wall of your house, six inches from the lower border, and in such a way that the bent end which is to be turned *upward*, shall project beyond the end of the wall just enough to leave a space of a quarter of an inch between the inside of the curve and the edge of the cleat to which it is bolted. Draw the nuts on your bolts very tight. Now take your remaining short one, and put it upon the lower corner of your front wall, so that its lower edge shall be just seven inches from the bottom of the wall, and with the elbow projecting as before, but *turned down*.

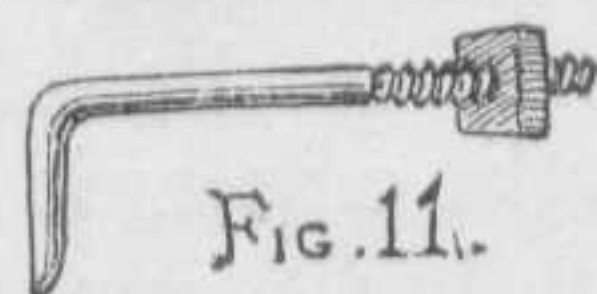


FIG. 11.

You have now left your three longer pieces of iron.

One of these must be placed on the lower rear end

of your right-hand side-wall (as you face the door) at seven and one half inches above the bottom, and with the elbow turned *down*. The other two go on opposite ends of the left-hand wall, that at the rear end turned *down*, and that in front turned *up*, the former seven and one half, the latter six inches above the bottom edge. But *all these long ones must project* three and one quarter inches, because they must reach past the edge of the adjoining wall, as you will see when you stand the walls up; the edge of the rear flush with face of the sidings, and lock them together, as shown in *fig. 9*.

Though I have seen the same arrangement at the top, yet a better way is as follows: (*Figs. 10, 11 and 12.*)

Have your blacksmith make three flat pieces of iron, each six and one half inches in length, having a closed loop turned up at the end, which carries a link six inches long, as in *fig. 10*. Bolt this piece of iron near the upper corner of each of the end walls — that is, above each of the *short* hooks, allowing the loop in which the link hangs, and *no more*, to project.

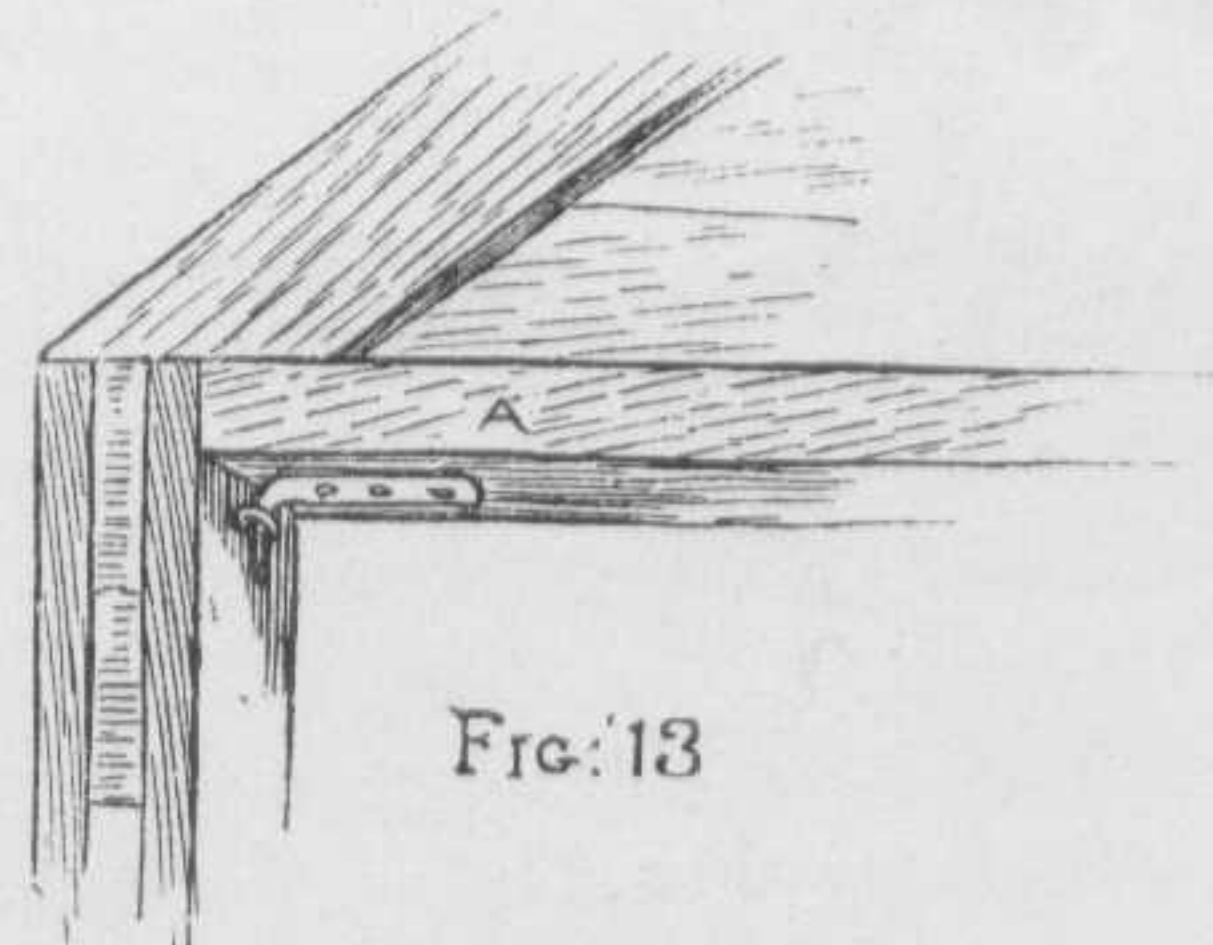


FIG. 13.

Get at the same time three squarely bent hooks of round iron (*fig. 11*), with a thread and nut at the long

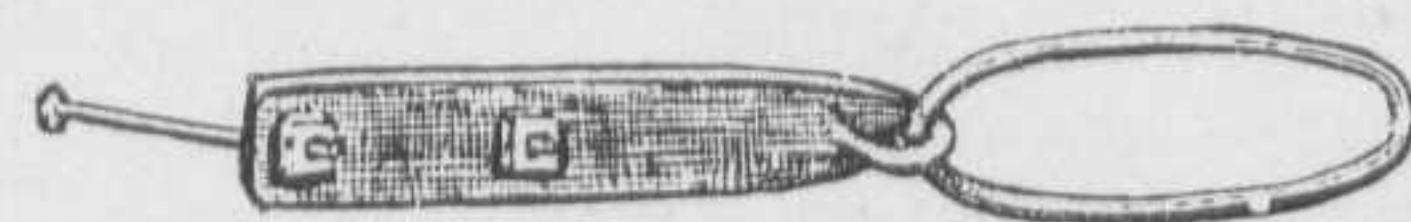


FIG. 10.

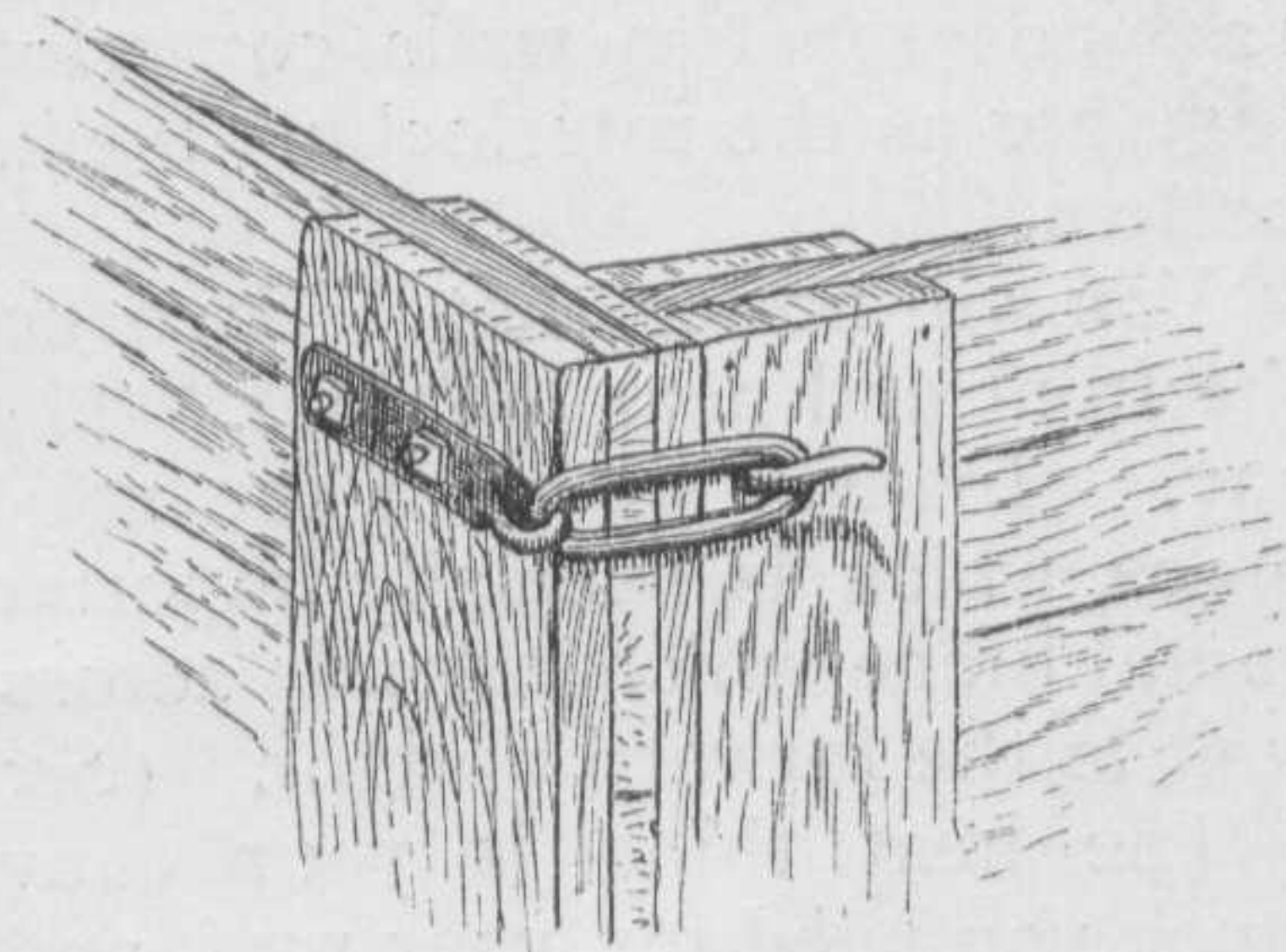


FIG. 12.



end, and the bent-up point no longer than the inner diameter of the link, lengthways, so that it will freely pass through the link. Set these

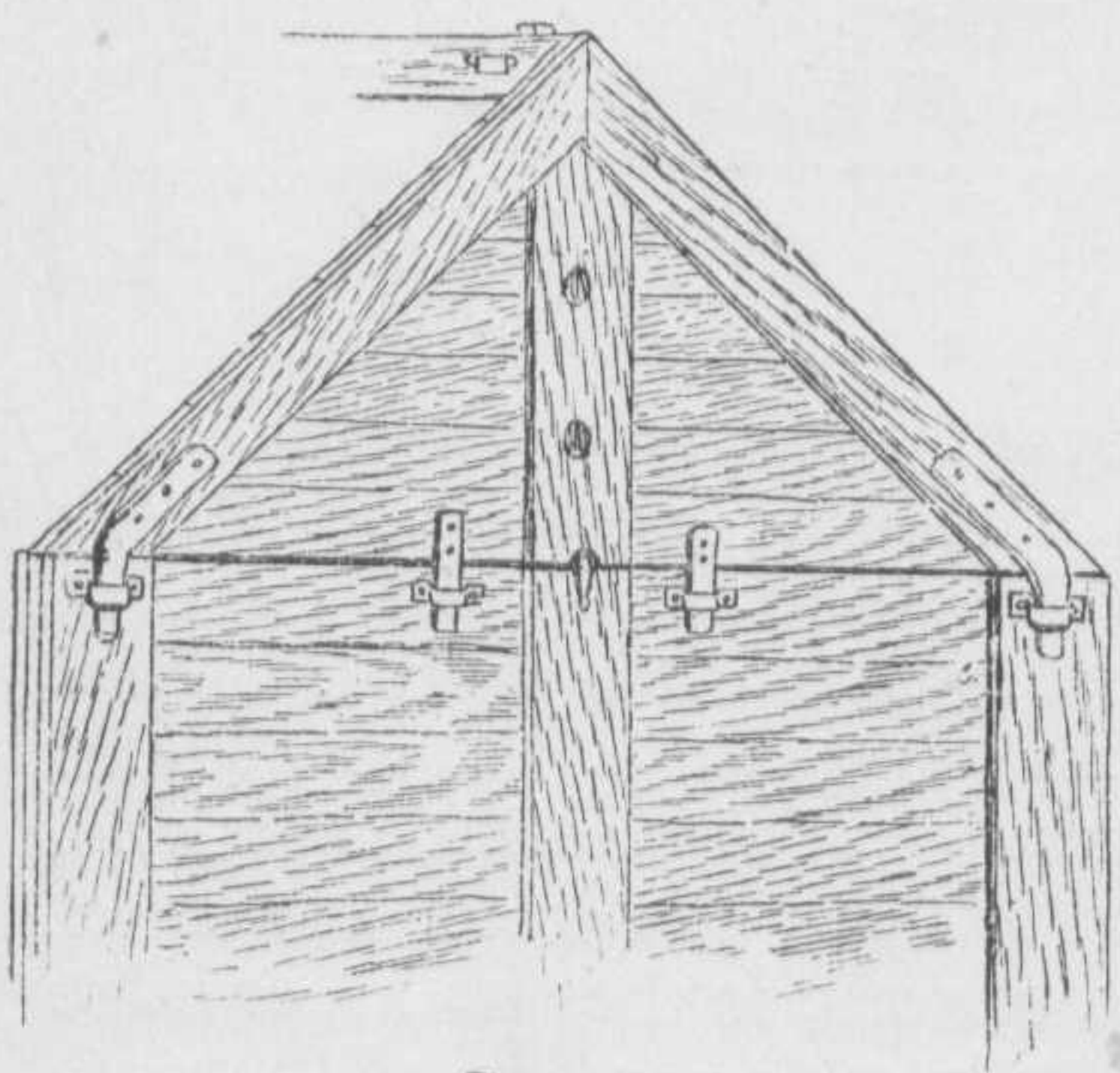


FIG. 14

hooks in those unprovided upper corners of your remaining walls that come opposite your links when the walls are set up, at such a distance that when the link is bent around the corner it will snugly fit over the hooks. In order to do this, however (and you can

see what I mean by a glance at *fig. 12*), you must set your hooks so loosely that you can turn their points backwards. The link is then slipped over, and the reversion of the hook to the position shown in *fig. 12* binds the two walls cornering there as securely together as the interlocking hooks hold them at the bottom.

You will notice that I have no clamps or link at the front end near the door. There is no chance for any. Instead we trust for solidity to the outside brace, which is specially important, and to the horizontal brace which extends across from the top of the wall to the forward upright. (*See figs. 13 and 16.*)

The next thing is your canvas. Measure how much you need for your roof, and determine how far down your walls you want it to extend. If you are going to camp in very cold weather, you would do well to have it all the way to the ground. It would add greatly to the warmth. As a rule, though, you will only want it to come well over the top of the siding, with some lapping in front and rear to keep out driving rains. When it is sewed into a big sheet you must attach to it at frequent intervals a short stout strap. Opposite these straps (*fig. 15*) nail to the outside of your walls straps containing big buckles (*fig. 14*) whereby you can buckle down taut your canvas roof. I know of no more secure and convenient method of holding the tent cover than this; but I would advise you to experiment on the reach and "full" of your cloth before nailing the buckles to the woodwork.

Now comes the setting of your tent-house up. The first consideration is the position. I can only say that it should be level, and where water will not drain into it in case of heavy rains. The next thing to be decided is,

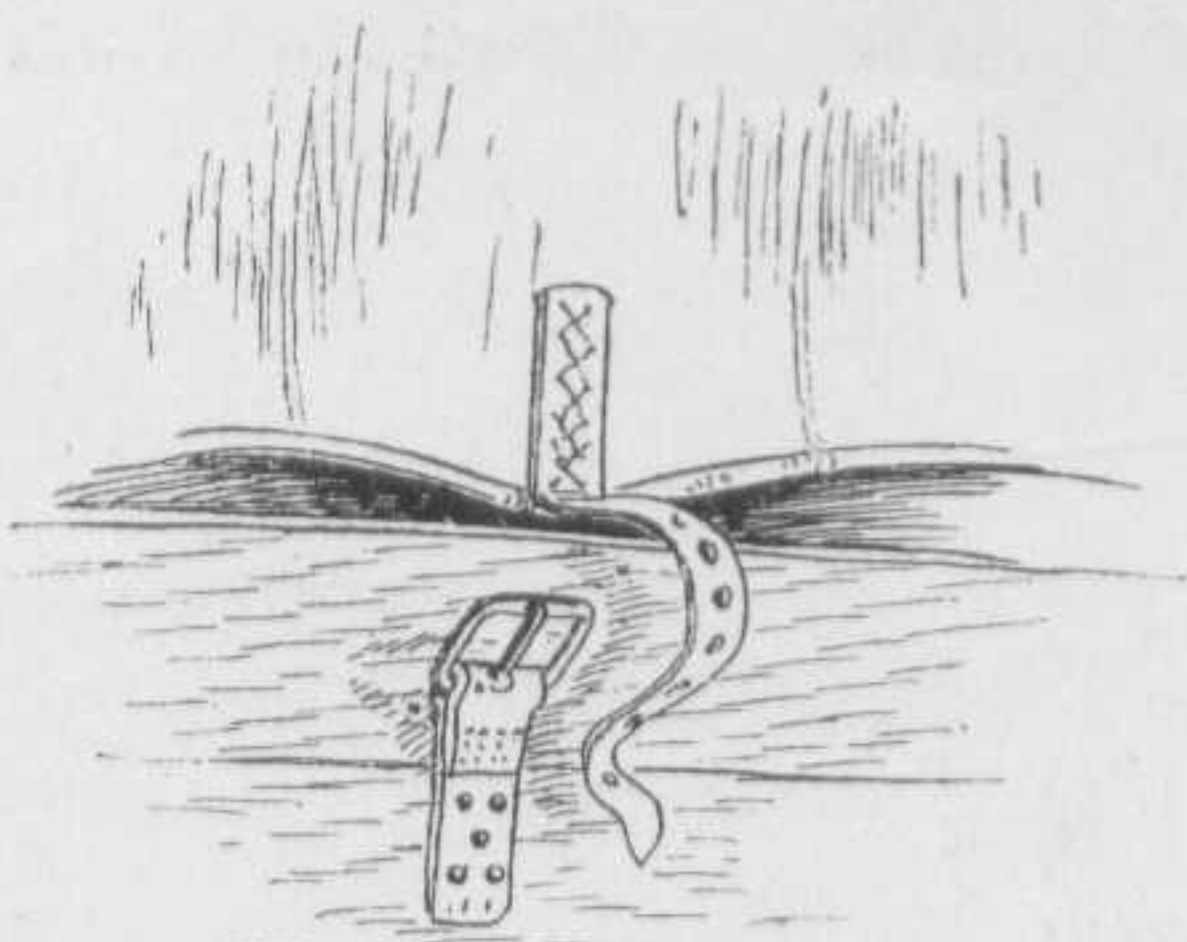


FIG. 15.

Will you have a floor? If so, lay it a few inches larger than your building, set your house on it, and nail down a narrow cleat all around inside close to the wall; an upright bolt dropping into the floor in the centre of each side, will be well also.

First set up the centre poles and ridgepole, placing the latter on top of the former, and sliding the iron pins down through the eyes. (*Fig. 3.*) Then place in position the *rear* wall. The side walls will come next, their clamps dropping easily at the corners into those of the end wall, and holding them firm while you slip the links over their hooks and twist them tight. Then set up the braces at the door end, and put up the front wall, turning down the tent pin on the ridgepole, to hold it firm, and locking the whole structure with the last link. Next, hook on the rafters, bolt the triangular gable walls to the upper part of the ridgepole, and set your braces at the sides. Nothing remains but to draw over your canvas, put your door upon its hinges, and hang up your hat. You are at home; a home you have put together at leisure hours in your barn or woodshed during the winter, have taken to the woods in a lumber-wagon, and set up with

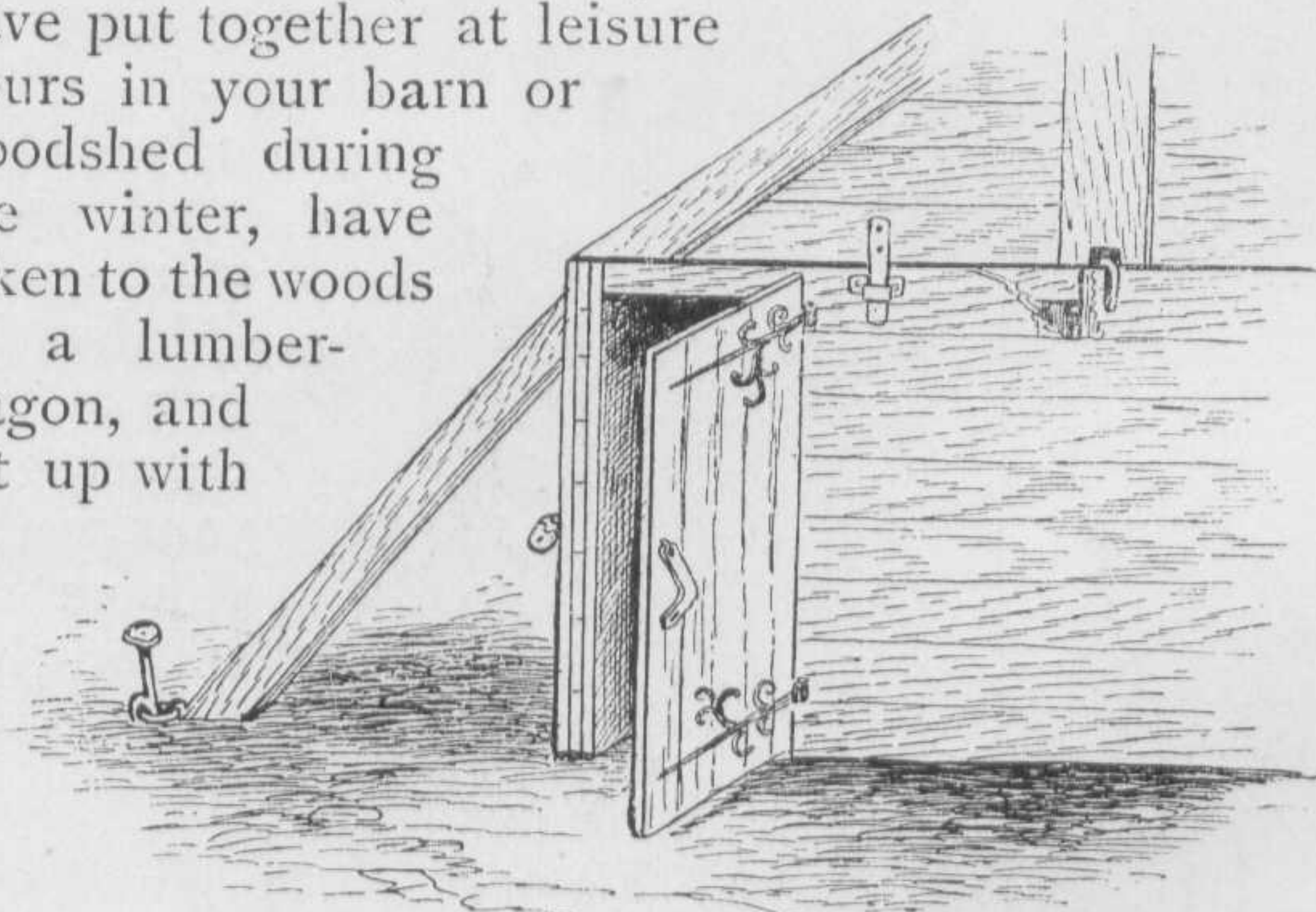


FIG. 16.

the help of a single companion; and when you are done with it you will carry it back to town and store it away in the woodshed or stable again.

In respect to the cost, I can give no estimates so good as in a few moments you can compile for yourself. It all depends on the price of materials and the cost of blacksmithing in your own neighborhood. The weight and breadth of the canvas purchased is also to be estimated variously, according to your selection, and the expense will be increased according to the degree of finishing, painting, and decoration put upon the structure. If I should make one for myself in New York or New Jersey, I should not anticipate its costing me more than twenty-five dollars ready for setting up; but this includes no floor and no painting. The interior furnishing of cots, cupboards, tables, stoves, *et cetera*, I presume you will understand as well as I. Also that you can contrive to put in windows as you want them, and provide a means of carrying your stovepipe through a tin ring in the canvas roof so as to be safe from ignition. I only wish I might help enjoy all the fun you will have!



## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

## V.

## A BILL OF WASTE.

MY dear, I'm glad you've run in this way while the folks are at lecture; take the little Shaker chair and let us be cosey. You would like to go over housekeeping accounts this evening when we are sure not to be disturbed? The High School girls would poke fun at that as poor entertainment, I'm afraid, but you begin to find an interest in such things? The success, the history and the tragedy of some families lies between the covers of their account books. This ledger with the red and blue ruling is all we have left by the fairy godmother who used to have a trick of appearing on the hearth or by the wayside just in the right time to help distressed damsels, or succor the whole family. The old fairy never shows herself any more, but she is there in the wainscot, or with her ear at the chimney flue, and her hand turns the leaves of the family account book nights, and makes strokes of good or ill luck according to what she finds there. As we keep its pages well or neglect it, we will feel the tap of her angry wand, or find her blessing left beside the hearthstone, you comprehend?

To show you in ugly, complete shape, what can slip away from one in the course of the year by easy, careless waste, let me give you some calculations I've amused myself with in a satiric way, when I wasn't able to hinder the waste going on around me. You know I have been out of health a good deal, and obliged to leave things in the hands of such help as we could find. If there has been a cross in my life it has been to be obliged to lie by and see substance and comfort thrown out of the windows by reckless stranger hands, without being able to prevent it. As the worry would not be kept out my head, I used to try to reduce it to exact shape, and pencil calculations about it, for it was a satisfaction to know the worst; just how much the stores laid in for the season would run short, just how many dollars of a moderate income were washed away in soap, starch, and firing, or flung away in spoiled food. The loss once known could be faced, regretted and dismissed. It always was a relief to know that five dollars a week were wasted when I had feared twelve. Anything better than uncertainty.

You know Mrs. Mills, who was laid by so long with lameness, so long after her fall on the ice last year, and you know Mary McGowan, the country girl she had to work for her. The way that girl got

on was remarkable. Coming here three years ago without a second dress to her name, and hardly able to read, by making the most of every chance, and never spending a penny for anything she could possibly have given her, she turns out on Sundays and afternoons as well-dressed, and, as her class say, well-appearing as any girl in town. She is intensely ambitious to get ahead in the world and improve herself. She told Mrs. Mills one day that she hated work, and wanted to educate herself to be a lady physician or teacher; "something better than a hired girl in a kitchen," as she said, with an accent of bitter scorn. It was very well for her to wish to learn, and Mrs. Mills was glad to lend her books and see her find time to study, and talk with her about things she wanted explained. With three afternoons a week and every evening to herself, there was time enough to study if she wished; more than many a young man has had to fit himself for college. The ladies of the Mission Society used to "take an interest in her," as they called it, and write her notes of advice and sympathy, send for her to visit them, urge her to write essays for the Sunday-school class, and advise her to read, write and study every chance. I used to wonder sometimes why it never entered the heads of these good women to exhort her to do her duty in the calling where she was, and the only one she was fitted for as yet, or why no one ever asked her gently if she was dealing fairly with the employer whose bread she ate and whose money she took. The ill-kept house, dirty and shabby about the front hall, the neglected grates and windows, the finger-marked doors, the disorderly rooms, all went down to Mrs. Mills' discredit, not that of the stout young woman engaged at her own terms to take care of the house. Mrs. Mills was ordered to keep still and get better, so she could only shut her eyes and bear the waste and disorder as best she might. You will know about it some day when you have a house of your own, if you ever have to depend on hired help. But I was going to tell you of the day when she first felt able to go into the kitchen and take things in hand. I found her sitting before the table, sorting and cleaning things from the pantry. May you never open the door on such a provision closet as that was! the shelves left so white and clean, covered with paper which was a sample bill of fare for weeks—smeared with syrups, cold gravy, dripping, sifted with pearl hominy, sago, coffee grounds, meat scraps partly spoiled and giving such an odor as would soon spoil everything left in the closet. In one corner was the new tin dish pan full of old bread



scraps, and under it the stone bread jar big enough to hold a child, and full of scraps, the cake box the same. They were put on the table, and I sat down to help sort the clean cut slices of bread and wedges of cake from those only fit for the chickens. The lower layers were mouldy, showing they had lain for weeks, and in the jar was a grown dead mouse, smothered by an avalanche of bread. There was a half-bushel of spoiled bread, including the mouse's vault, and we had the curiosity to weigh it. Twenty pounds wasted of home made bread worth six cents a pound. I looked further. There was a joint of roast beef with blue mould on it and an odor quite conclusive of decay, that weighed three pounds and a half, worth seventeen cents a pound. Two pounds of fish gone stale in a covered dish, twenty cents. Three quarts of soup stock sour in the kettle by keeping in a warm place. Cake dry, and too dusty for use in puddings, at least a dollar's worth; as much more burned; the pickled cabbage spoiled by neglect, half a dollar; two pounds of suet, mouldy, sixteen cents. Dripping spoiled at least three pounds, eighteen cents. And the grocery bills at least five dollars a week higher with the girl than before she came. Will you count it up?

Bread, 20 pounds, at 6 cents	\$1.20
Beef, 3 1-2 " " 17 "	.59
Fish,	.20
Soup, 3 quarts, at 9 cents	.27
Cake,	1.00
Cabbage,	.50
Dripping and suet,	.34
	—
	\$4.10
Waste in cooking,	10.00
	—
	\$14.10

Seven dollars a week waste that could be counted; the list just reckoned being the loss for a fortnight. Add to this the socks, towels and handkerchiefs which blew off the bushes or were snowed under, the pillow cases and fine things mildewed, the china broken, napkins stained or scorched, and you will agree that Mary McGowan was a fortune to anybody by getting rid of her. I can't say she was any worse than a dozen other girls I've known — alas! — but the wonder in her case was, that neither she with all her ambitions and good feelings, nor the cultivated Christian women who cared for her, ever thought there was want of principle in her wasting another's substance so recklessly, and that owner anything but a rich woman. Common honesty would keep her from filching seven dollars a week from Mrs. Mills' purse, but neither high sentiments or Christian teaching prevented her from wasting that and more for her employer, out of dislike and impatience of her employment. I had rather some one had stolen the money if it were my case, for then it would have been of use. As it was, over twenty-five dollars a month was thrown in the garbage. Perhaps you think this an imaginary

case, but it was such a bill as a sick and sorry woman sat down to last winter, over the wanton waste of a "faithless help."

A gentleman once made an estimate of the daily loss in London, if each grown person wasted two ounces of bread, and that is so small a crust that you would never think about it. The amount came to many thousands of pounds; worth nearly \$5000. Think what good this money would do the charities and hospitals of the city; and remember that if so much bread is wasted one day, so much money *must* be paid out to replace it the next.

Pray don't think I mean you should follow the old frugal habit of "eating a thing to save it," if there is more food on your plate than you care for. The very poorest economy I know of, is forcing more on your digestion than it needs, and spoiling your stomach to save a pennyworth of something. But there is no need of wasting the pennyworth either. Better learn tasteful ways of helping to food without loading plates, or serving more than a person is likely to want, saving it in its best shape; for it is worth more neat and untouched to serve on the table than to give cows or chickens.

Two young housekeepers who were school friends when girls were comparing expenses. The families were the same and the style of living; yet one spent \$15 a month less than the other.

"But how do you make it out, Sadie?" implored her friend, almost with tears in her eyes. "I am sure I economize every way I can think of, yet you have a nicer house and table than we do on less money."

"There's only one way to account for it, Helen," said the graver of the two, a girl who had been trained to care-taking by a good mother. "I do my own work as you do, and looking back on our expenses for a year, I don't think one cent's worth of our supplies has been wasted, or that it failed of being turned to the best account. I *know* there has not been a stick of kindling, or a scuttle of coal burnt, or a pound of flour, or a bit of soap, that wasn't put to its best use, nor a shilling's worth of anything scorched, torn, or lost in the washing, and it all counts by the end of the year.

"But you must be all the time thinking of little, petty savings, that must narrow the mind in time, and I never could bring myself to that in the world. I hope I never should."

"Helen, you know my grandmother was one of the neatest, most economical souls ever made. She used to say that she could do a day's baking of bread, pies, and cake, and when all was made, the waste flour and scrapings would all go into the bowl of a spoon. It was true, for I've seen her mix and mould in the nicest way without, it seemed, strewing a grain of flour, or dusting the table. She taught her family this habit of nice dealing; and mother taught us, till it comes like second nature to be careful. You don't think every moment about being attentive to a visitor who calls, for it's easy and natural to entertain. You play



an air on the piano without thinking, because you have practised it, or you are nice about your dress because you can't help it. But I have heard coarse, unrefined people say they never could abide to be always thinking of their manners or their clothes, for they were sure they never could attend to anything else if they did. Folks can narrow their minds by always thinking of one thing, whether it is dress, or music, or how to save a few cents; but that is no reason why we should be afraid to be well dressed, or fine musicians, or good economists."

It is a great mistake to think that care or saving narrow the mind. Rather, they are the exercises in simple numbers which train it for the larger problems beyond. The *motive* for economy is what makes one's mind sordid, or the reverse. You want to spare that you may spend. Let me call one thing to your notice; that lavish, careless people are the very ones who are mean in quiet ways. The woman who disdains to save on her grocery bills, or to think whether a ton more coal is burnt in a season than is necessary, is the very one who will feel that she can't afford to subscribe for a magazine, or buy a book, but will borrow her neighbor's library books, and leave her to pay the fines for keeping them out over time, beside preventing her from drawing a new one, which is more. She will allow, perhaps, a poorer acquaintance to pay for carriage fare and lunches, instead of insisting on paying her own as she ought; she will let a plain sort of visitor come half a dozen miles to see her on business and go away faint and tired without offering the slightest refreshment; she is the woman to drive past poor Mrs. Martin hurrying over the long, hot walk to the station without five minutes to spare, and never think of offering the vacant seat in the carriage; and she will see Alice Hathaway's Christmas work at a standstill weeks for want of the right colors in silk, nor ever dream of giving her the odd skeins left in her

own basket. Small kindnesses do not occur to her.

You know Mrs. Reeves has the name all over town of being a close woman because she will not pay high prices at the shops, won't buy eggs at fifty cents a dozen for everyday cookery, or take turkeys at twenty-eight cents a pound when she can buy them of the farmers for eighteen pence. Her servant girls denounce her stinginess because she puts them on allowance of fuel and provisions for the week's work, and looks after the soap and matches. She wears fifty-cent thread gloves whenever possible, instead of long Swedish ones at \$2.50, beside a score of other economies which the other ladies criticise as beneath them. But the washerwoman in her kitchen Mondays always finds her big cup of hot coffee and sandwich ready at eleven o'clock when she begins to remember that she ate a cold breakfast at six o'clock, and walked two miles before work. Old Miss Clay, who lives by herself in lodgings, is always asked to stay to tea when she calls, and has some cold chicken or plum pudding put up for next day's lunch. Daddy Mills, who is left alone now his wife and daughter are dead, has his washing and mending done every week and his poor old clothes kept in good repair. Half a dozen families have their WIDE AWAKE and weekly newspaper sent them out of the money saved on soap, starch and matches alone, and every year Mrs. Reeves buys a rare book, or new picture, out of the saving on coal bills. On a limited income she sends her sister's girls to school, and gives them expensive lessons in music and painting. No wonder she wears darned gloves and, as I heard her hired girl tell ours in the kitchen one evening, "never has a loaf of black cake in the house any more than if she was a washwoman herself." She knows how to put the greater before the less. Lecture's over. I hear Esquire Fitch and the minister talking along street as they always do. Would you have thought it was so late?

## HEALTH AND STRENGTH PAPERS.

BY PROF. D. A. SARGENT.

### V.

#### WORK AND PLAY.

HAVE you ever noticed how light and easy labor becomes when it opens a way to anticipated pleasure? Many of you have worked hard all day in clearing the snow from an ice pond in order to enjoy an hour or two of skating. Others have toiled earnestly in building snow forts, or in shoveling a path on which to slide. If asked to run on an errand

to a neighboring town some five or six miles away, it seems a great hardship, though you have travelled more than twice this distance in a day, and uphill at that, in order to have the fun of sliding down again. Perhaps you have often been reminded of your folly, and in answer to the question, What shall I do for fun and recreation? have been invited to saw wood or carry coal.

This would hardly be called sport or recreation, because it is not the kind of pleasure that one would take to naturally. The object of sawing wood is



generally to prepare fuel for cooking or heating purposes. It was not designed to give exercise to any faculty or any muscle, although in fact it does furnish excellent exercise for the muscles of the arms and back. Just as walking uphill to slide down again, even though you took a burden with you, would give admirable exercise to the back and legs. But you may have observed that the forms of men who make a business of sawing wood are usually bent, and that these men have poorly developed muscles. So would it be with you if you made a life's business of walking uphill to slide down again.

This want of development, or wasting away, might be accounted for in part, on the ground of excessive use of some of the muscles. But it all means the hardest kind of work; work with little pay, work with nothing ahead, work without fun or recreation.

This kind of treatment soon disheartens an individual, and so it does the individual parts of his body.

Every muscle has nerves running from it, which act like telegraph wires and put it into communication with the brain.

When you want to lift your foot, you send a nervous impulse down from the brain; this stimulates the muscles to contract, and the foot is lifted in obedience to the will.

When a muscle is contracted, remember, it is always furnished with an increased supply of blood, which is food, and this increase up to a certain limit is in proportion to the force and rapidity of the contraction. To go further back, the nature of the contraction depends largely upon the nature of the impulse from the brain. If this is languid and half-spirited, so will be the contraction of the muscles, and consequently there will be little food sent to them, and no development.

If on the other hand the impulse from the brain is animated and vigorous, the muscular contractions will be correspondingly energetic; the heart will be stimulated to greater efforts; an increased supply of

blood-food will be pumped forward, and the muscles will be greatly improved in size and strength. In a word, this constitutes the difference between the physical results of work and play.

Ordinarily work exhausts, and play recreates, simply because the former is pursued with great tension and no pleasure, and the latter is engaged in with little tension and great pleasure.

After all, it is the spirit and disposition behind every effort, be it of work or play, that counts to the body's injury or welfare. The boy who does not enter into a sport with his whole heart and soul is only half a boy—the other half is dreaming of dolls, sunflowers and fairy tales.

As far as the interest of the sport goes, he might as well be absent, for his presence only tends to depress those who do enjoy it. When you play, give yourself up to it completely; in other words, let it take possession of you: then your actions, free and spontaneous as the frisking of lambs, will be a means of joy and benefit.

If it fall to your lot to work for a living, or if only occasional tasks engage your attention, make the best of your opportunities always. As in play, enter into your work cheerfully and with your whole heart and soul. Make yourself superior to your circumstances.

Remember that it is the animated spirit that you put into your efforts that does you good. If you are carrying wood and coal up-stairs put your mind into your legs and you will walk up as easily as if you were going to rescue a little child from a burning building. "Can't do it," do you say? Take a full breath, nerve yourself up to it, then try it and see. Mind rules the world in little things as well as in great. Brain force is behind every movement that you can make with your body. If you would outrun, outjump, or outdo your companions in anything, animate your muscles with your brains whenever you work or play, and sooner or later you will be sure to win.

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## DAYS AND NIGHTS IN THE TROPICS.

BY FELIX L. OSWALD.

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### I

#### A BRAZILIAN FOREST.

**A** SUNRISE in the tropics often repays a traveller for weeks of fatigues. When the first rays gild the tree-tops of the primeval forests, indescribable colors shine among the flowering shrubs and gleam and glitter on the dewdrops of the ever-

green foliage. Chirping locusts, humming beetles, and whirring dragon-flies dart to and fro; countless birds on the wing mingle their melodies with the noise of chattering monkeys and screaming palmcats; strange calls, the voices of unknown creatures come from the inner depths of the woods, but every sound is a cry of exultation; all living things seem to salute the sun. In the recesses of a deep tropical forest the atmosphere is rather sultry, though its



fragrance would sweeten the glow of our warmest midsummer days. In the open glades the air is cooler, and how the birds in the tree-tops must enjoy the morning hour can be appreciated only by the traveller of a fast-going steamer on the rivers of the South American tropics. Sunshine, river breezes and the rapid motion make the air both mild and refreshing, especially on deck of the large Brazilian mail-boats that have low railings instead of bulwarks, and are not so crowded with freight as our river-steamers.

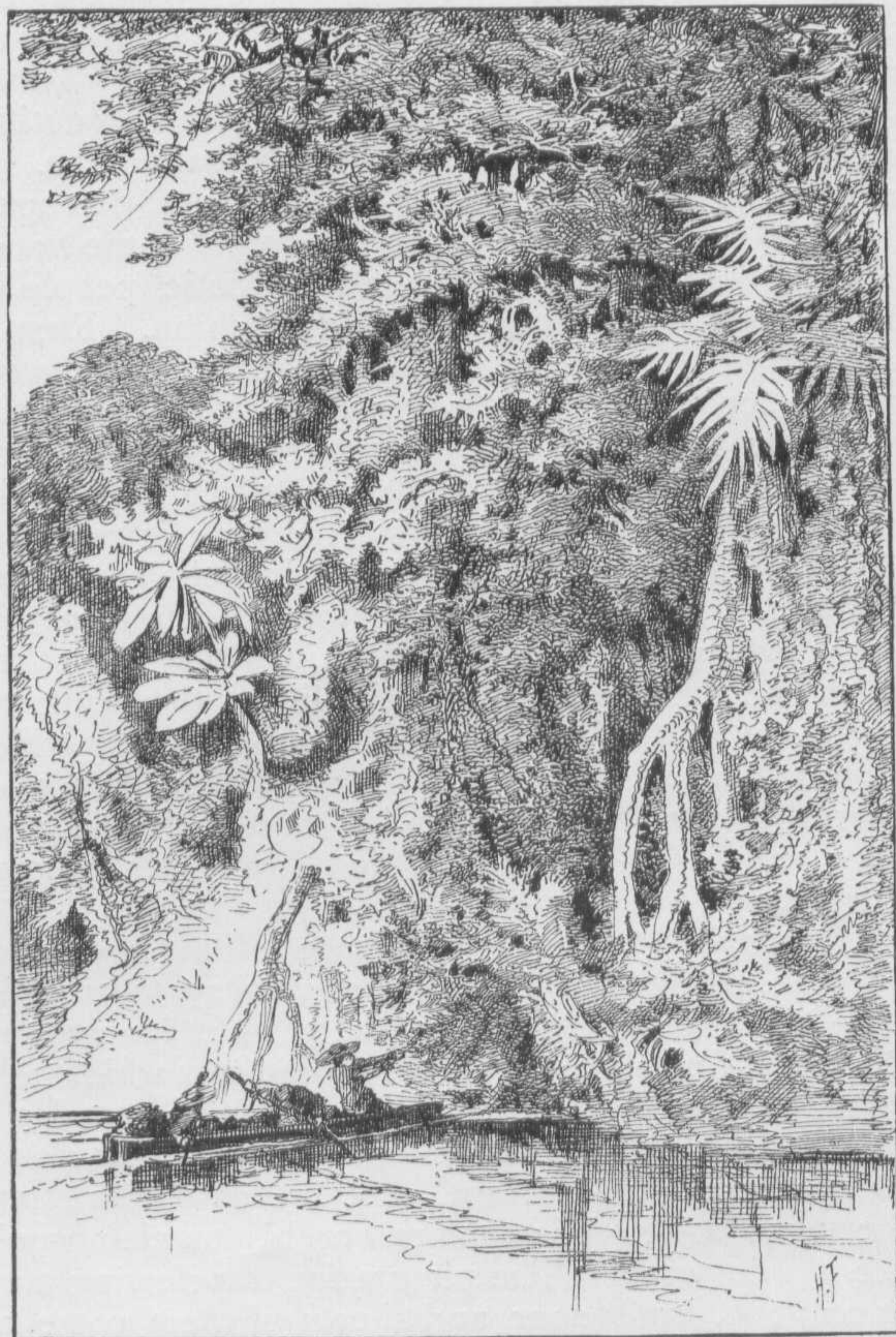
But on my first trip from Para to San Juan del Sur I could not help wishing that the rails had been a little higher. Among my travelling-companions I had a boy of such restless disposition that the captain offered to exchange for him a pet squirrel, and whenever we approached the wooded river-banks this youngster made a rush for the shore side of the boat. "Oh, what trees! Oh, and look at those little parrots — why, they are young ones! Let me get out!" he would cry, and clamber out on the boat chains till he had to be caught himself to save him from toppling overboard. At the upper landings his excitement became almost unmanageable, and one afternoon when we heard the distant cry of a troop of spider-monkeys, he snatched up his travelling bag and besought me to go ashore and make the rest of our trip by land. I had to make him a dolphin-angle to get the monkeys out of his head, but the next morning his wish was gratified. We reached Lagunas before daybreak, and learning that on account of the low water the steamer would be delayed for a day or two, we got our luggage ashore and landed among the *Adansonias*, or wild fig-trees, which rise like towers from the river-banks, and took the overland road to San Juan.

The natives had made up their minds that our party must be treasure-hunters. They had seen me grubbing around among the rocks and stones of the landing-places, and our guide gave me a full account of all the neighboring silver mines, and pointed out a creek where he himself had once washed out a pint-cup full of gold-dust in a single day.

Mineral-hunting, however, was not the only object of our journey. Six years ago a company of Brazilian merchants purchased a large building in Rio Janeiro and obtained the Government's permission to establish a national museum. But Brazil, with all its fertility, is not a wealthy country, and the company being unable to pay the prices of European curiosity-dealers, they decided to begin with an exhibition of the manufactures and products of their own country, and I undertook to collect specimens for their department of natural history. Their commissioners had given me a list of the various kinds of minerals, plants and animals they wished to procure, and we were now on our way to the headwaters of the Tocantins River in the mountains of Parana.

Besides the guide and the driver of our packmules,

I had three companions whom I must here introduce to my readers. Captain Holgar, our major-domo, or steward, was a native of Lima, and had travelled all over the South American Republics as the interpreter of a party of railroad surveyors. He was well acquainted with the borderlands of Southern Brazil, and spoke three or four Indian dialects, besides Portuguese and Spanish. Upon his advice I had engaged an old negro who had joined us at Para and offered his services as a cook. Old Ike had learned his trade in New York, and had come to Brazil because he preferred the South American climate, but the stupidity of the natives was the theme of his constant



THE GIANT FIG-TREES OF BRAZIL.

complaints. His Portuguese was so mixed with Spanish and English words that the country people could hardly understand him, and if they laughed he had a way of staring at them in speechless astonishment; as if their impudence was quite beyond his comprehension.

But a still funnier specimen of humanity was Benny Rodez, our little berry-picker and boy of all work. *Mozo Monito*, "little monkey man," the Indians used to call him, and that was really the right name for him.

(TO BE CONTINUED.)



## WHAT TO DO ABOUT IT.

NETTIE M. S. "Our Chautauqua class are at a loss to know what the crescent signifies on the Saracen flag." The crescent is the symbol of increase, and was the crest of the ancient empire of Byzantium. On the overthrow of the empire under Mohammed II. the Turks, regarding the crescent which met the eye everywhere as a good omen, adopted it as their chief emblem.

ROSE AND MAUD. "Please tell us which is the most æsthetic flower." Have you quite clear in your mind what you mean by an æsthetic flower? In the literal sense, any flower is æsthetic, that is, beautiful, in its place with surroundings which harmonize. If you want the most decorative of all flowers, that again is a matter of taste and neighborhood. If the flower most adopted by the so-called æsthetic people is meant, that is a matter of passing fashion. First, it was found that garden lilies with long stalks were very graceful in old slender vases, and everybody took care to have a stem or two of lilies in their rooms. Then the sunflower was discovered to be very rich and ornamental in effect, as it really is. The daisy and narcissus have each had their turn, and people are just getting the glimmer of an idea that by seeing too much of the best things they grow frivolous and tiresome. Either the lily or the sunflower is chosen as the badge of the æsthetics, for which reason I advise you to select any other flower for your rooms or your decorative work, till the poor lilies are less talked about, and lose their affected significance.

HARRY W. "Would you please tell me how transfer pictures are made, and a good way to transfer them?" "Will I," you mean to ask, Harry boy. Can't you find the rule in your grammar which tells when to use the will or the would? I wonder if Harry will make a paper-weight such as a boy once decorated in transfer and sent me as a Christmas gift years ago? His mamma or his teacher would like it, I imagine. The picture for transferring must be on good, firm paper, and sheets of them come on purpose for the work. Lay the print in cold water five minutes, then leave it to drain smoothly in the folds of a clean cotton cloth—an old sheet or pillow case is best, for it absorbs the water. When damp, that is, in about ten minutes, cover the face of the picture with nice mucilage, made from strong gum tragacanth, clear white of eggs, rock moss, or gelatine, lay it face down on the surface to which you want to transfer it. Press out all blisters, and wipe away smears, then let it dry. After this, wet the back by laying a cold wet cloth on it a few minutes and carefully peel the white

paper away by rubbing with your finger till the print begins to show through. This is nice work, for it is easy to peel all away and make a hole which ruins the picture. If well done, the picture shows every line with a white film over it, which disappears by varnishing with clear white transfer varnish, or beaten white of egg. It is well for boys to try such work, for it teaches them to be nice and particular.

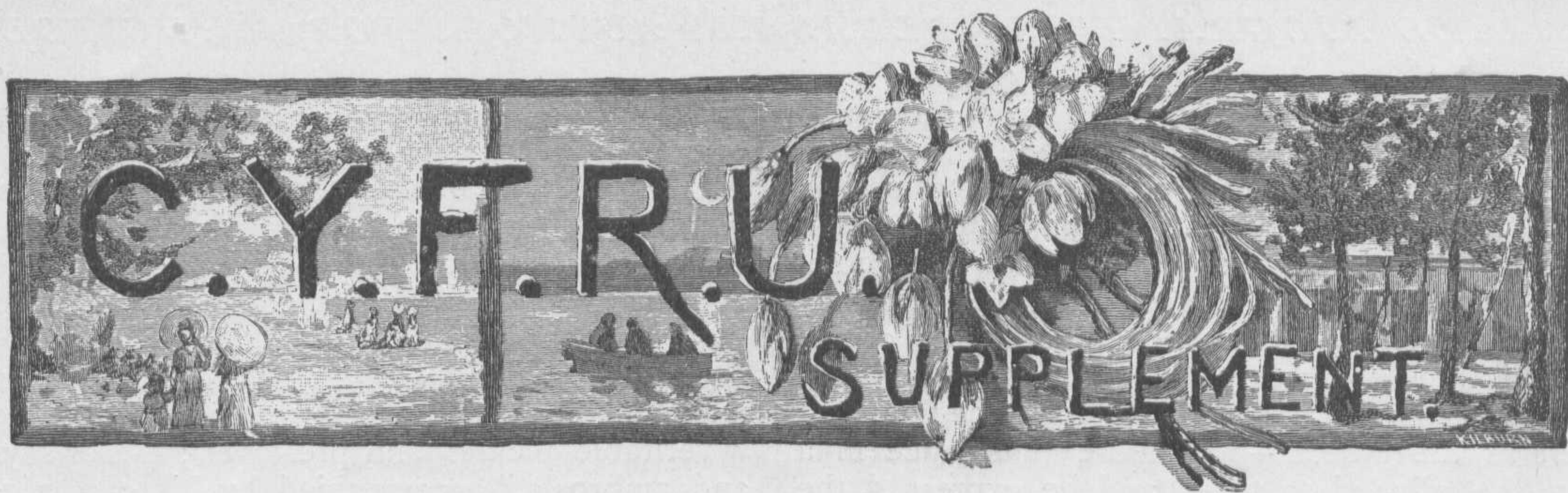
SUBSCRIBER. "I have been chosen secretary of a literary society. Strictly, what are the duties of the office? Is it in order to report beside business transactions all items of interest of an informal character connected with the society, particularly when such report will give life and spice to the meeting?"

The duty of a secretary is to take minutes of all the proceedings at each meeting, and enter them as briefly as possible in the record which is read at the next meeting. Any letters on business of the society naturally fall to him for answer, unless there is a corresponding secretary. It depends on the amount of interest before the meeting, whether lively reports would be acceptable or not. Generally, anything to add life and spice is welcome, but the limits of good taste should be closely observed by an officer of the society, and he should be sparing of personalities. Begin in a modest way, make brief reports, and lend your efforts to make other exercises interesting.

M. "Will you please tell me what you think about the pronunciation of the word pumpkin, which we always hear pronounced 'punkin.' I judge by Webster that he intended it should be pronounced as spelled, pumpkin, but have only once heard it pronounced so." This is a case of natural modification of sound, where three consonants awkward to pronounce are blended in easy speech. True we say bump-kin, giving the sound of the letters, but that is a word seldom used, and were it to be as commonly heard as pumpkin, the sound would infallibly fall into "bunkin." Pronounce either word rapidly many times, with the dictionary pronunciation, and you will see how the tongue drops into this homely form. Question the best educated people, and you will find that although they agree the word should be pump-kin, according to the books, yet no one ever calls it anything but punken, or punkin, in actual speech—unless it is a pedantic person who has learned not from usage, but from books entirely. Now, it is agreed that the authority in pronunciation is the usage of the best society, and usage which can give so good a reason for itself as this can be safely followed. As pumpkin itself is a corruption of pompion, we may conclude that farther liberties may be safely taken with it.

THE WISE BLACKBIRD.





## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### VI.

JAMES HENRY LEIGH HUNT.

DOES anybody wonder why Leigh Hunt is put into this list when so many whose names would naturally occur are left out, here is the answer: For fear that in the multitude of books, young people may fail to become acquainted with him—and they ought to know him. One of the pleasantest of pleasant authors, and most literary of literary men, blithest of English essayists—does not that, so far as it goes, describe Leigh Hunt? Yet one thing more: Would not he, if he could speak, say of himself the very words he made Abou Ben Adhem dictate to the angel?—

Write me as one that loves his fellow men.

Which he loved best, his fellow men or books, it would be hard to tell. It was said of him: "He loves everything; he catches the sunny side of everything; and except that he has a few polemical antipathies, finds everything beautiful." He was a wonderfully winsome man; always spoken of by his friends as being irresistibly attractive, full of vivacity, so sweet-tempered, so cordial and graceful and buoyant; a hopeful being, whom care could not crush, though of cares he had a large allowance. "His face turned towards the sunrise;" poor all his life, but uncomplaining, so that even Carlyle, who took such a grim view of life, friends and all, said he never saw a more happy, indomitable soul. His presence carried sunshine; it was like having a singing bird about. His life, his bearing, his talk and his writings, were the very gospel of gladness and good will. Like Friday's child in the old rhyme of the "children of the week," he was "loving and giving;" and love is always sure of love. His friends were warm and true; there was not a man in the literary society

of London of his time, who was spoken of so tenderly except Charles Lamb.

Hunt was one of the chosen few present on those delectable evenings at the humble home of Charles and Mary Lamb, where, over a little repast of bread and cheese and celery with beer, were said some of the most brilliant things that the walls of any room were ever listeners to. Dear Mary Lamb, "who will live forever in the memory of her friends as one of the most amiable and admirable of women," and "that most delightful of creatures, her brother Charles—of all the men of genius I ever knew, the one the most intensely and universally to be loved;" that is what Walter Savage Landor, one of the most severe and exacting of men, wrote about the brother and sister; and the tributes to Leigh Hunt are just as warm and unreserved.

The books which our author wrote were many, for he had a large family to support, and he was one of the kind of men without any calculation in business matters; money did not stay with him, and it was not in his nature to ever get beforehand with the world. The pressure to write being always upon him, he caught up a great variety of subjects, both old and new; but the old he made as fresh as if they had never been told before. He was not profound or vigorous, but delicate, bright and playful; his taste was pure; he knew all the choice things, and had the tact to set them before you in attractive shape.

His prose work was nearly all of the light literature order; gay sketches written with the utmost exuberance of fancy; pleasing trifles of a few pages for the weekly or monthly journal, something to take up for the entertainment of odd moments, something sprightly and good-tempered from the pen that was always ready, or an exquisite piece of criticism, or talk about London or the country. It is always in a gossiping style, like a good talker talking on paper,



bringing in his own opinions and likings; and this personality is not exactly of the sort one thinks of as egotism; but is quite captivating, making us see so much of the man. With a manner half childlike and altogether gracious, he pays the reader a tacit compliment by seeming to confide in him; and any reader likes that, and the frequent glimpses of the one who is saying so many good things.

He meant his books for all readers—the youngest as well as the oldest—and more than once in a preface, he alluded to this; and he expressed the purpose he had in mind, that a certain volume might

needs must be a good guide; and those of his writings where his fine critical taste and judgment have full play are most admirable of their kind. Of his *Imagination and Fancy*, it has been said that a young person who wished to acquire a good taste for poetry and the meaning of words, could learn more from it than from any rhetoric.

That was a kind of work after his own heart—to make choice selections from his beloved poets—“veritable pickles and preserves; rather say nectar and ambrosia,” accompanied by his own nice comments: and why he made the book (purposing too,



JAMES HENRY LEIGH HUNT.

be one “to lie in old parlor windows, in cottages, in cabins aboard ship, in country inns, in country houses, in summer houses.” Once he half-apologized for impulsive portions, saying that he came of a tropical race, “and what might have been affectation in a colder blood, was only enthusiasm in a warm one.” But one likes, too, that way he had of entering with his whole soul into a subject; it was a part of the very richness of nature which made him so cheerful through all his adverse fortune.

A man so painstaking and so fond of his subject

to have a whole series illustrating different qualities, but able to prepare only one other, on *Wit and Humor*) let his own preface explain:

This book is intended for all lovers of poetry, and the sister arts, but more especially for those of the most poetical sort, and most especially for the youngest and the oldest: for as the former may incline to it for information's sake, the latter will perhaps not refuse it their good-will for the sake of old favorites. The editor has often wished for such a book himself: and as nobody will make it for him, he has made it for others.

Leigh Hunt's prefaces are capital; you must not skip them.



Young people should become *belles-lettres* scholars; there are other things of importance besides text books, which do not interfere with them, but rather help to the more thorough knowledge of them. It is a part of a liberal education to be familiar with authors, to know about them and what they wrote; and it is a kind of knowledge which one can begin early to acquire, and be adding to all of the time. In reading Leigh Hunt, it is natural to wish to follow out his incidents and references to their source. Young people—if I understand them—are fond of having things suggested, and then enjoying the keen delight there is in research: they experience genuine zest in hunting up for themselves the classical allusions which all literature is full of; which they meet at every turn, hear in lectures, find in the current reading of the day: even the newspapers and school-books abound with them.

To such seekers he is a treasure-house, a whole library in little. He was an omniverous reader, and one cannot help thinking of him as sitting amidst a perfect luxury and opulence of books, a vast accumulation of them, crowded by them, his shelves and tables weighted with them, his walls lined with them; but unfortunately, the fact of his narrow means goes against this pleasant belief: he always had cut flowers in a vase before him when he wrote (one of his graceful papers is on having *A Flower for your Window*) and some books, but not many. In his later years, the house which he had was so humble, and he lived so simply, that Charles Sumner, who went to see him, could not help speaking of it; "but he possesses a palace of a mind," said Sumner.

What fable, legend, world-old story that is worth knowing, can you not find something about in his pages?—and when he does not narrate the whole in his own dainty way, he tells just enough to tempt you; you can safely expect to find almost anything ancient or modern, from Greek mythology to Robinson Crusoe, Mungo Park and Sir Roger de Coverley; and in several languages, where he found so much enjoyment that he tries to allure to the study "such as can find time for it, and to give some little taste of their exquisiteness to those who cannot."

True to his nature, he found everywhere something pleasant; like the bees he loved to allude to, he got at the honey, and was "as deep as a bee in some of the sweetest flowers" of literature. A helper to a great deal of general information of a kind that it is desirable to know, he saves you the trouble of going over unnecessary ground: through him you know what is good and where to find it; and he is the sweetest-tempered of critics. Before you have been long in his company, you will have such a sense of the vast wealth of books in the world as you never had before; you will begin to have that joyous expectancy felt by one who loves them, of the unfailing and inexhaustible resources that are in store for you. The joy of books!—need I tell of it to one who knows? He loved them; so he will make you

love them too, if any one can, if the possibility to, is in you; and you will be richer and happier for knowing Leigh Hunt, and you will have finer and more correct and critical taste.

Books! books!—in everything he wrote you will see his passionate fondness for them; and nothing gave him greater pleasure than to write such a paper as that called *A Novel Party*, where the guests were all out of the novels he liked, or that feast of good things, *The World of Books*. He says:

Oh! books, you are truly a world by yourselves, and a real world too, as the poet has called you, for you make us feel, and what can reality do more? Heaven made you, as it did the other world. Books were contemplated by Providence, as well as other matters of fact.

Of the many volumes he wrote, there is no one more complete in itself, and more inviting, than that made up for a certain Christmas, to which he gave the title of *A Jar of Honey*; from a little blue jar of honey which he saw in a shop window and bought—contents and all the price not exceeding eighteen pence. A chapter on the blue jar from Sicily, and the brass jar from the *Arabian Nights*, introduces it; then follow mythology of Sicily, the beautiful legend of King Robert and the angel, and admirable papers on pastoral poetry, on bees and bee-hives. Those relating to English pastorals will take such a hold on you that you are in the country as you read; you feel the air on your cheeks, and see orchards and gardens; you love the country more for having the beauty of English and Scotch pastoral poetry pointed out, and you are eager to read the passages he speaks of, and know more of that side of Shakespeare and Spenser, of Crabbe and Alexander Ramsay and others; of all the delicious things there are for you.

The name of our author was really James Henry Leigh Hunt, though he chose to retain only the part he is known by, and he was born in Southgate, near London, 19th of October, 1784, of which place he wrote, "It is a pleasure to me to know that I was even born in so sweet a village;" but would not such a contented soul as his have been satisfied and grateful about his birth-place, wherever it happened to have been? Then his reader must be reminded that Southgate is close by Edmonton, and that "in Edmonton churchyard lies Charles Lamb," and not far off, "in Highgate churchyard, Coleridge." Like both these, Hunt was a "Blue Coat boy;" and he too tells the story of the kind of life that was lived at the famous charity school. Lamb had left it just before Hunt entered; but the latter recollected him "coming to see the boys, with a pensive, brown, handsome, and kingly face."

Some of the ancestors of Leigh Hunt on his father's side lived in the West Indies; and the early home of his mother (who was a friend of Benjamin Franklin, and a niece by marriage of Benjamin West, the painter) was in Philadelphia; so that he had good reason for calling himself a child of the tropics and an Anglo-American. He was brown, with



"nearly black eyes" and very dark hair, and had the most youthful face even to middle age and later, as all the boyish, almost girlish portraits show, and a voice which our countryman, Mr. Fields, called "caressing."

He was sensitive and conscientious, and such was the influence over his childhood that never in his life after one remorseful utterance of the kind, did an oath pass his lips; "there was no swearing in our family," he said; "there was none in our school (Christ's Hospital); and I seldom ever fell in the way of it anywhere except in books."

Books were even then a "never-failing consolation" to him; his earliest favorites out of school hours were Spenser, Collins, Gray, and the *Arabian Nights*; he was familiar with only one play of Shakespeare, and that was *Hamlet*, of which he had a kind of "delighted awe."

His first appearance in print was at the age of fifteen, when his father collected the boy's verses and had them published; and the author was as proud of the book then as he was ashamed of it in his old age. When he was twenty-four he and his brother set up a weekly paper, in which he had an article against the Prince Regent, and in consequence was put in prison for two years; but he managed to make a pleasant home of it for his wife and little ones who shared it with him; he had books, flowers, and a piano, and many new friends, besides the old faithful ones like the Lambs, went often to see him.

Later he started a periodical, entitled the *Indicator*, which gives the name to a collection of his essays; and his life was one of constant literary activity, spent partly in England and partly in Italy. He could write in any place and under any circumstances, and was always happy over his work. This is the way in which one of his *Wishing Cap Papers* begins:

If I had health and my friends were all comfortable and the world as happy as it might be, and I could transport everybody where I pleased as well as myself, and books were as plentiful as blackberries, and a thousand other things (as some-

body said) were a thousand other things, the pleasure I should take in writing these papers would be inconceivable. As it is, it is no mean consolation. The house I generally write in being large, I contrive to dismiss certain little scholars I have into a distant playroom, and get an hour to myself after breakfast, uninterrupted—the sound of a wood fire is crackling in my ears—and with a fresh pen and a fair sheet of paper I begin.

The "little scholars" were his children—he had seven; you will recall some of his poems to them, or about them; one to Johnny,

With cock-up nose so lightsome,  
And sidelong eyes so brightsome,  
And cheeks as ripe as apples,  
And head as rough as Dapple's;

and the loving lines in your school-book, *To T. L. H. Six Years Old, During a Sickness*.

If this series of papers was not practically limited to the prose of authors, could I help quoting two sonnets, *On the Grasshopper and Cricket*, one by Hunt, the other by John Keats? But you will read them after I tell you how they came to be written; how the two poet friends were together one evening, and Hunt proposed that they try which could soonest write then and there, a sonnet on these blithe insects of the field and the hearth. Each set to work, and in an incredibly short time produced the charming little pieces, Keats being the winner, at which Hunt cried out, "Ah! that's perfect! Bravo, Keats!"

In his old age Hunt had his home at Chelsea, where he knew the Carlyles intimately; and it was of Mrs. Carlyle, the bonny little Jenny, that he wrote the verse you must have read, *Jenny kissed me*.

He died August 28th, 1859, and was buried, according to his own request, in Kensal Green Cemetery.

NOTE.—The fullest particulars of his life are contained in his *Autobiography*, and in the *Recollections of Writers* by Mary and Charles Cowden Clarke. His essays and criticisms have been published under many titles, among which are *The Indicator*, *A Day by the Fire*, *The Wishing-cap Papers*, *The Seer*, *A Jar of Honey*, *Men, Women and Books*, *Imagination and Fancy*, *A Book for the Corner*, and *The Religion of the Heart*.

## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

### VI.

MARTIN GUERRE AND ARNAULD DU TILH: PERSONAL IDENTITY.

MANY readers of WIDE AWAKE will remember the recent and very famous Tichborne Trial.

About thirty years ago Roger Charles Tichborne, heir to the great Tichborne estates in England, went travelling abroad, and in 1854, set sail from Rio Janeiro for New York, but the vessel was lost at sea, and every one but his mother accepted the belief that he was drowned. Eleven years afterward a man whose real name was Arthur Orton, arrived in England, pre-



tending to be Roger Charles Tichborne, and claimed the estates. He resembled Tichborne somewhat, and had in some way learned so many facts about Tichborne's life and travels that he could tell a very plausible story; and he deceived many people, including even Tichborne's mother. Two very lengthy and expensive trials were needful before it could be established that he was only a swindler. And even to this day some persons doubt whether he is not the true Tichborne, and was not condemned unjustly.

That a mother should be deceived into accepting a swindler as her son seems very strange, but there is a case stranger yet, in which an impostor deceived a wife into recognizing him as her husband. The true husband's name was Martin Guerre, and he was married to the lady, whose name was Bertrande, when they were only eleven and ten years of age. The affair occurred in France more than three hundred years ago; when such early marriages were allowed. The couple lived very happily for about a dozen years, when Martin Guerre suddenly disappeared. He was last seen walking along the road carrying a bag and stick, and apparently starting on a journey. People supposed that he had become tired of living at home, and had determined to travel and see the world. Nothing was heard of him for eight years. At the end of that time this Martin Guerre (as all the townspeople supposed) was seen coming back through the streets, recognizing his old neighbors and friends, and looking just as he used, except that he had grown stouter and somewhat sunburned, and now wore a heavy beard. He walked directly to his old home, where his wife recognized him as readily as the neighbors had done, and welcomed him very kindly; though he had deserted her so cruelly, she uttered no reproaches, but treated him affectionately.

Of course every one asked Martin Guerre all sorts of questions as to why he went away and where he had been. He said that he became ashamed of knowing so little of the world, and had therefore enlisted in the army; and he gave accounts of sieges and battles in which he had been engaged. He also, in conversation with his friends, reminded them of many occurrences in old times which they had forgotten. To Bertrande in particular, he rehearsed incidents of past years, and seemed perfectly familiar with everything that had happened. For instance, when they awoke on the morning after his arrival, he asked her to "bring me my white breeches trimmed with white silk; you will find them at the bottom of the large beech chest under the linen." She had long forgotten the breeches and even the box, but she found them just as he had described. How was it possible to doubt that a man who came so naturally, who resembled Martin Guerre so closely, and who was so familiar with all the little details of Guerre's life, was in truth Martin Guerre? Yet he was not; he was an impostor; and his real name was Arnauld Du Tilh.

Three years passed away before any one suspected

the deception. It then happened that a soldier who had known the real Martin Guerre in the wars, passed through the village, and, upon seeing the false Martin Guerre, declared that he was a cheat. Then arose the famous trial to ascertain the truth. French trials differ from English and American in this respect, that it is common for the judge to question the accused very closely, endeavoring to convict him by his own admissions. The false Martin Guerre was interrogated day after day in the most searching manner; but he answered all questions, and no one could detect error in any of the answers. For example, he gave correctly all details as to his marriage, naming the persons who were present, and the priest who officiated, describing the arrangements and the dresses, and giving the smallest circumstances without hesitation or mistake. After having questioned him, the courts went onward to examine witnesses. The general result of two long investigations was that more than forty witnesses declared positively that the accused was really Martin Guerre; among these were four sisters and two brothers-in-law of Guerre, and many other persons who had known him intimately before his disappearance. These witnesses described a number of personal peculiarities and marks upon the real Guerre, all which were found upon the accused. Upon the other hand about forty-five witnesses were very certain that the accused was not Martin Guerre, but was Arnauld Du Tilh, whom many of them knew very well. All the while the accused continued to meet the witnesses against him with perfect composure and confidence, and to answer all questions frankly and correctly. And upon the whole, the judges were scarcely able to decide; they thought that the testimony was so nearly balanced, and that the man appeared so well, that they could not find him guilty. It is a very important rule of law that every person accused of crime must have "the benefit of the doubt," if there be a reasonable doubt, of his guilt. If an accused person is innocent, or if the jury or the judge doubt whether he is innocent or guilty, he must be set at liberty; he can be convicted and punished only when there is clear proof that he committed the crime charged against him. In this case the proof was not clear, but was very conflicting and doubtful; and the judges were about to give the prisoner the benefit of this doubt and therefore acquit him.

But just before such decision was rendered, the real Martin Guerre returned to the town. He recognized his old home, his neighbors, relatives and friends, as his predecessor had done; inquired for his wife, and on being told that she was attending the trial, which was proceeding in another town, he went thither and presented himself in court. Strange to say, the accused man was not disturbed, but maintained his claim and story as calmly and positively as ever, declaring that the new-comer was an impostor who had been hired to appear by those who were prosecuting the trial against him. And, stranger yet, he



seemed to be able to answer questions about the past life of the Guerre family more minutely and accurately than the second claimant was able to do. But when the witnesses who had believed him to be Martin Guerre, were asked to look at the new-comer, they pronounced in his favor, retracting their former testimony. Thus the four sisters recognized him positively, and the oldest of them, after a moment's glance, burst into tears and embraced him, crying, "This, this, is my brother, Martin Guerre! I confess the deception which that monster practised upon me for so long a time." Bertrande, also, who seems to have been sometimes of one opinion, sometimes of another during the trial, immediately admitted that she had been deceived, and declared unhesitatingly that the new-comer was her true husband. The two men were placed side by side and compared. The resemblance was astonishing; the old French reporter says: "Two eggs do not resemble each other more than did these two men." But upon the new testimony of the witnesses, now disavowing the accused, the judges convicted him, and he was put to death for his fraud. Before his death he made a confession, saying that some intimate friends of Martin Guerre, misled by the resemblance, had accosted him by that name; which gave him the idea of claiming Guerre's position and property; and that he had gained his intimate knowledge of Guerre's life partly from Guerre himself, whom he had known slightly in the army, and partly from various acquaintances of Guerre.

There have been other very curious trials in which the question has been to identify a person who claimed to be some one else. There was once a Marchioness de Douhault, who died, and was buried with funeral services in the church, but three years afterwards a lady came to the chateau, claiming to

be the Marchioness, and declaring that the funeral was a fictitious one, and that she had been all the while kept in an insane asylum by her wicked son, in order that he might enjoy the property. She looked so much like the Marchioness that at first she was received with much rejoicing, but afterwards there was a trial and the decision was against her. There were several men, at various times, who pretended to be Louis XVII., the dauphin of France, whose death was officially announced in 1795, but was always involved in mystery, and is a very interesting and perplexing topic in the history of France; neither of them, however, met with any substantial success. There was once a man named Mège who pretended to be the son of a family named Caille; and a hundred and ten witnesses who had known the true Caille before he died, swore that Mège was he; there were, however, one hundred and ninety-nine witnesses who testified to the contrary; and these prevailed.

Only a few years ago, in New York City, a lady complained to the court that a brother of her dead husband had taken charge of his property and was managing it as his "administrator," but would not give her a proper share. The brother answered that the husband was not dead, but had authorized him to manage the property as he was doing; and he brought into the court room a man who declared himself to be the husband, and who at least looked and talked so much as the true husband did, that scarcely any one could deny his story. The wife, however, denied it very positively. Everybody was very much perplexed, and there was a long trial. But before it could be completed, the lady died.

The novels *Griffith Gaunt* and the *Missing Heir* are founded upon real trials where the question was "who is who?" or a puzzle about personal identity.

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## HEALTH AND STRENGTH PAPERS.

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BY PROF. D. A. SARGENT.

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### VI.

#### MEASURING OUR STRENGTH WITH OTHERS.

**I**N watching the movements of birds and animals you have no doubt been greatly distressed by the cruel manner in which they often treat one another.

It would seem as if the more weak and helpless a creature was, the more the rest of the flock or herd delighted in picking upon him. Did it ever occur to you that this is the way that nature takes to keep up

the vigor and strength of the animal kingdom? The same law affects you and your playmates. Who is the butt of your class? Whom do boys most ridicule and make fun of? Whom do the bully and coward knock about and tantalize? Look around you, and you will find that they are the boys least able to defend themselves. Don't you remember your first week at a new school where all were strangers to you? If somebody had not pulled your hair, chalked your back, pushed you through the door, and interested himself generally in your discomfort, you would have been greatly surprised. This is what you ex-



pected, and is one reason why you dreaded to go to the new school. If you stood up like a little hero, controlled your temper, avoided a quarrel, and worked hard until you had vanquished your tormentor in everything, intellectually as well as physically, you did just what thousands of boys who are now distinguished men, did before you. If you are still under trial, don't be discouraged. Above all things, keep your temper. "He that wrestles with us strengthens our nerves, and sharpens our skill. Our antagonist is our helper."



FIG. 1.

A few years will put you on a level with those now above you in size and strength. So work hard, work with a determination to win, and you will find that advancement in strength and bodily skill will elevate you in the estimation of your comrades, and increase their respect for you. I will show you a few simple feats which will test your agility, strength, and suppleness, and enable you to compare yourself with others.

1. Stand erect, and extend the arms horizontally forward. Now raise the right leg quickly, keeping the knees straight, endeavoring to touch the hands with the foot. Return to position, and try the same



FIG. 2.

thing with the left leg. (See fig. 1.)

2. Sit down on the ground, cross the legs, and try to rise without using the hands.

3. If you succeed in doing this, try it while using one leg only.

4. Stand erect, and raise the right knee to the chest without bending forward; repeat the same exercise with the left knee. (See fig. 2.)

5. Place hands on hips, and try

to make elbows meet behind back.

6. Bend forward without bending the legs so that the head will come between the knees. (See fig. 3.) The same feat may be tried while sitting.

7. Shoot the right leg forward, standing on the



FIG. 3.



FIG. 4.

left, and keeping both legs straight. Then shoulder the left leg standing on the right.

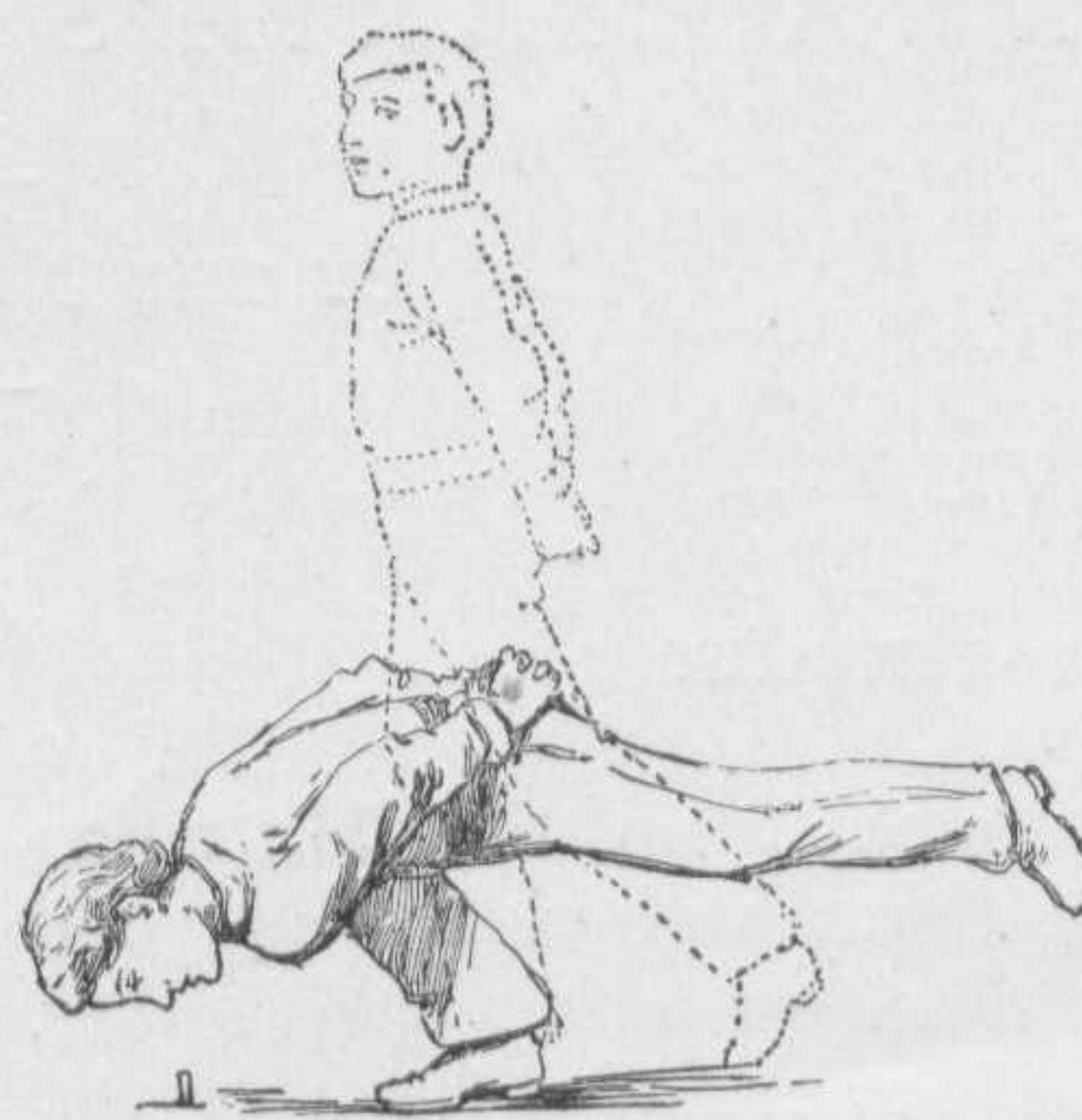


FIG. 5.

endeavor to pick up from the ground with the teeth a peg of wood. In order to make the test fair, no part of the body except the foot should touch the ground; the hands should be locked behind, and the peg ought not to be more than an inch above ground. (See fig. 5.)

11. Stand on the right leg, lean backward with arms above the head, at the same time extending the left leg forward.

When the body is on line with the extended leg, and both are parallel with the floor, endeavor to balance yourself in this position.

The same exercise may be done while standing on the left leg, etc. Should this exercise prove too difficult at first, try to balance the body while it is parallel with the floor, by extending a leg behind, and bending the body forward. (See fig. 6.)

12. Get upon the knees, clasp the insteps with the hands, and endeavor to walk without losing the balance. It is better to try this feat

on a mattress or upon a thickly padded carpet.

13. Put the legs on the shoulders, and try to balance your weight on your hands. (See fig. 7.) After a little practice you will be able to walk or hop along while in this position.

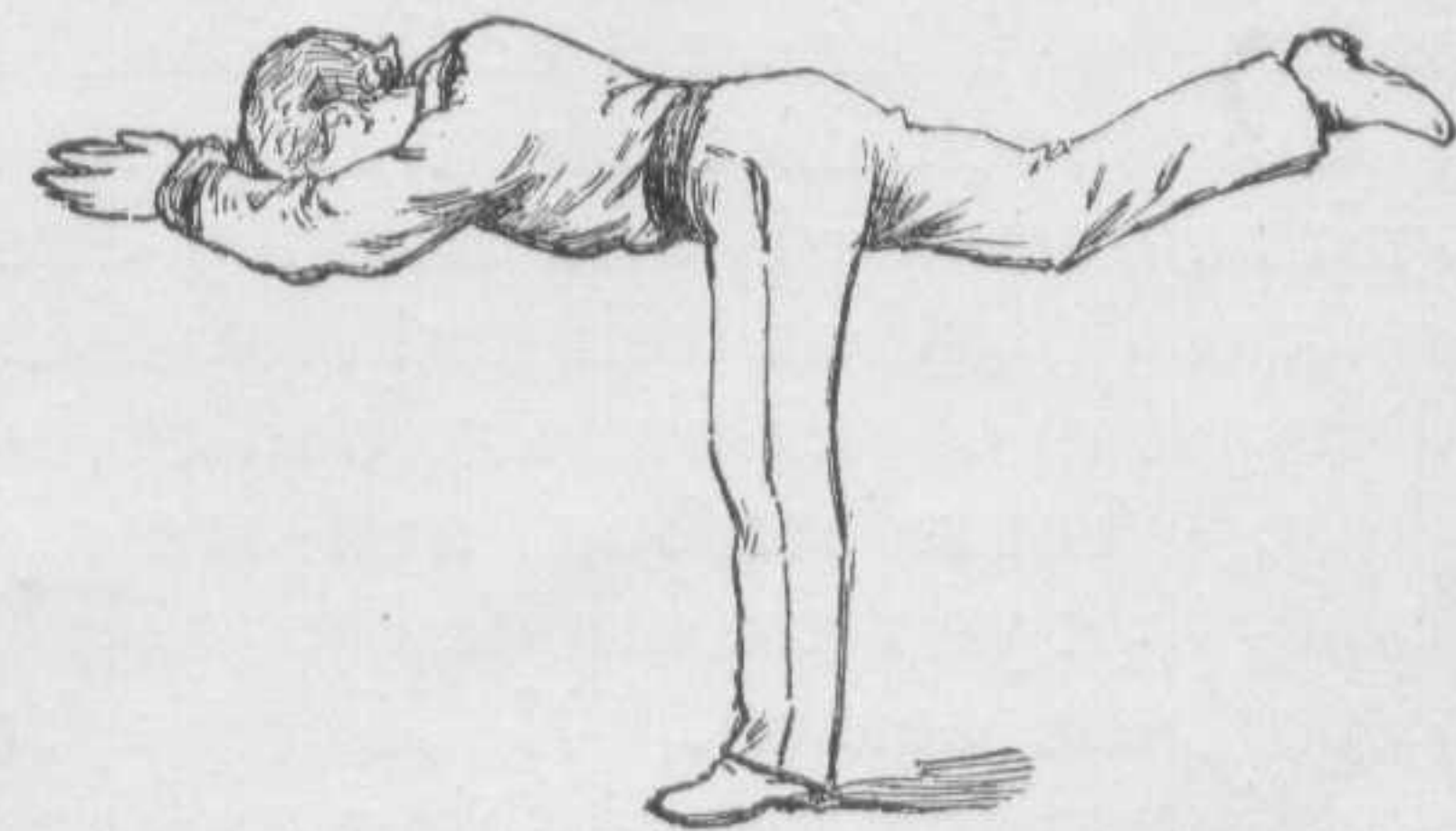


FIG. 6.

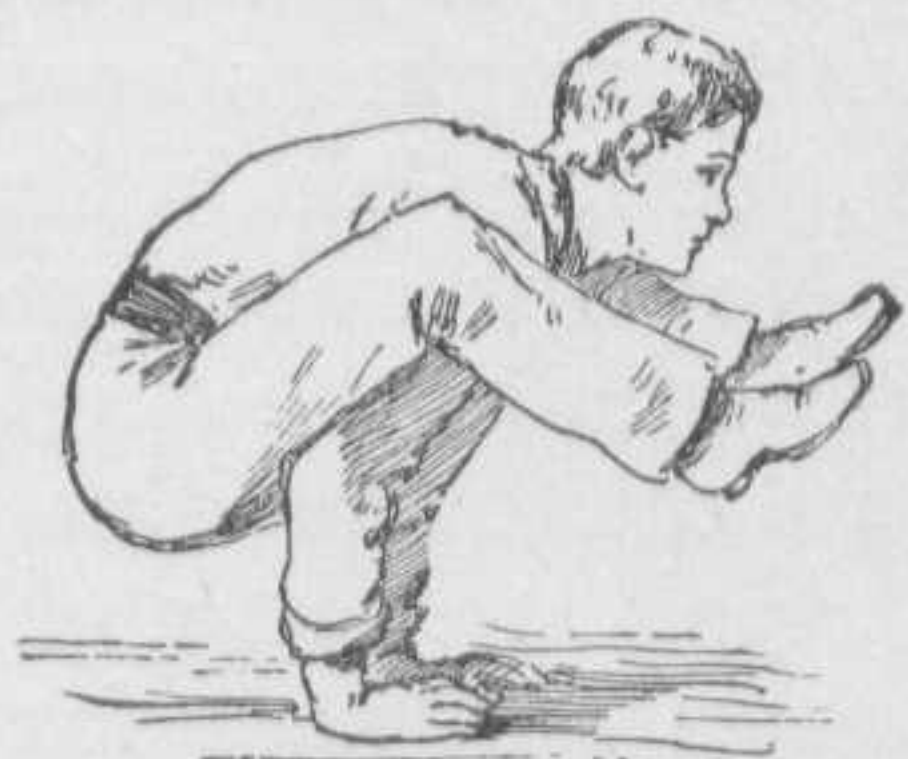


FIG. 7.



## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

## VI.

## TWO TEAKETTLES.

THREE miles and back from the Mattapan woods for palm willows and violets is good excuse for feeling rather tired on a fair spring day. You and I would both be better for a fresh cup of tea if it were not such trouble to make it. To fill the kettle, start the fire, wait for the water to boil, to rinse the teapot, get out the caddy and go through the service of making tea for the entire family is too much for tired creatures, and we will sit around from now till teatime, an hour and a quarter, drooping and half-comfortable, pretending to work and doing nothing well for want of that small refreshment.

How much of their lives people waste going on with aching heads and flagging energies, doing their work only half as well and half as fast as they would after a cup of tea or soup had revived and freshened them. Your feet burn and are so swelled after the tramp that you are minded to give up walking for the rest of the season. Nothing is better for that exhausting pain than bathing the feet at once with hot water — a brief and effective remedy — only there is no hot water.

I forgot! We are at aunt Jane's, who has taken out rights of comfort large and small. The fire is low in the range, but there is a plenty of hot water in the boiler with its covering of felt which keeps the heat in night and day, beside a steaming kettle, ready for a foot-bath or fomentation, and, as I live! a second teakettle, bright as new, holding three pints, and just off the boil, as old ladies say.

Now for aunt Jane's nice ways, which are blissful to watch as the single kerosene lamp-stove is lighted with the touch of a match, and the small kettle falls to singing at once, and the little brown Japanese teapot comes out, kept for tea-drinking at odd times, the small caddy whose top holds just two spoonfuls of the leaf, and the old teaboard, a beech oval fitted in black lacquer rim — why, one makes tea for the pleasure of it, in such fashion. Drank from fluted teacups with a thin slice of fresh lemon floating in each, without milk or sugar, how delicate and inspiring it is! They tell of people who put a drop of attar of roses in the tea-caddy to flavor the pekoe, but aunt Jane knows a trick worth two of that, and mixes fresh apple petals, kin blossoms to those of the tea-plant, with her fine tea, which is scented like the costly "imperial" teas that come through Russia. You know the delicious perfume of the highest qualities of

tea comes from drying the flowers of the plant with the tender young leaves. But what use would the fluted "old pink" china or the inlaid caddy have been without the ever ready kettle on the boil? And who but aunt Jane would have the simple device of keeping two teakettles with constant relays of hot water? In Mrs. Oliphant's story of *The Curate in Charge*, charming as all her stories are, another aunt Jane, an old-fashioned gentlewoman, lays down the rule to her nieces that "in a good house the kettle is always boiling," ready for fresh tea which Englishwomen like any hour of the day. Not only for tea, but twenty more important uses, hot water is so constantly needed that the teakettle has become the symbol of home comforts, which are the only reason and excuse for having homes at all.

When you come to think of it, why shouldn't every house have two teakettles, and hot water on call? Just because they don't think of it, or give that little time, that small sum of money and contrivance which insures life-long comfort on this and a score of other points. The cost of the second kettle usually stops people from providing it, for it is curious how the outlay of a few shillings will scare them from some convenience which would save them time, labor and trouble, at least once a day the year long. You see aunt Jane's large teakettle is an old-fashioned black iron one, which she bought in a small shop for thirty cents because it was old style, though it never had been used. Now the iron teakettle has the advantage over tin of holding the heat longer, and keeping water hot better. So Philena, the hired help, told us her grandmarm said, and we found the same thing in Count Rumford's Philosophy, which has a great many things of interest to housekeepers. It is curious how the grandmothers find out by experience what the philosophers discover by experiment. For my part, I find it impossible to do without either. Well, the big teakettle costing only thirty cents, aunt Jane could afford to buy a small, convenient tin one for forty cents to keep polished and on its good behavior for tea-making and sick-room use. When the children want to make paste for scrap-books, or Lucy wants to do up her lace ruffles, or somebody wants hot lemonade for a cold, there is never any waiting for boiling water, and waste of time and patience, because of the two teakettles, one of which is hot if the other isn't.

Another convenience at aunt Jane's is the two dustpans and the chamber-broom hung in the back entry up-stairs. You know when one has been cutting out work in her room there will be litter, or



when the boys are not careful to use the door-mat, they will leave traces of mud on the carpet, and what a trouble it is to run down-stairs after broom and dustpan. Aunt Jane said she never could afford to carry her one hundred and forty pounds of weight up and down-stairs every time a room needed extra sweeping, when a new broom cost thirty-five cents, and a second dustpan ten. While she was about it, she would have a dust-bin too, and if you lift the cover of that large box in brown linen and red trimming in the corner of the passage up-stairs, you will find it is an old tin cracker-box, to receive sweepings from the bedrooms. They are all swept thoroughly once a week of course, but between whiles all transient sweepings go into this box, which is emptied at convenience. Aunt Jane counts that this second broom and pan which cost forty-five cents in all, have saved her going up and down-stairs at least five times a week for the last five years, or thirteen hundred times, and allowing that interest on the first investment might make the price of her broom and things seventy-five cents, one cent fare saves her from going up and down seventeen times, and she considers it cheap. I know a family who went without a new dustpan ten years after they needed it, and made the old one do, because they never felt they could afford to pay half a dollar — country price — just for a convenience. But the mistress said when she had to get a new one finally, and thought of all the back-aches and vexations about sweeping up she might have saved by getting it before, she felt too big a fool to stay in the family. There are savings which are frightfully expensive in the end.

The boys' bed stands in a corner of their room, away from the windows, and inconvenient to reach for making. You know how unwholesome it is for any one who sleeps at the back of a bed in such a position where no fresh air reaches it. Yet how tiresome it is to pull the bedstead out every night, and push it out of the way in the morning, the room being too small to allow its standing out. The casters are too small. Get a larger size of broad wooden wheels, and you can push the bedstand back and forth easier than you can move a chair. The boys can pull it out at night into the best air in the room, and shove it back to give them room for dressing. You can move it about as you like to tuck in the clothes when making the bed, and leave it out to air when no one is in the room; a touch will put it in place any time, and the broad tires will not wear the carpet like small iron ones. It is a trifle to see that the furniture in a house has easy casters; but the difference in ease of moving and keeping it neat will surprise you. It's the principle of having two teakettles over again — that comforts are always cheap.

I go frequently to a restaurant, where the dinner is good enough to tempt one, but there is always a moment of pain from the sharp squeak of chairs moved on the marble floor. It gives me a nervous

dread from the moment of entering till that agonizing sound has pierced my ears and gone into the roots of my teeth. There is a little invention of rubber caps for chair legs which allows chairs to move on any surface without wear or sound, and public or private dining-rooms where the rubber-shod chairs are in use, have a sense of luxury most grateful. So many people use polished wood floors, I wonder that the rubber caps do not come into general use. When families for convenience, live in the kitchen a good deal, or have painted floors for the dining-room, these soundless chairs would be just as desirable as on tile pavements. The rubber caps cost five cents apiece, less by the dozen, fit any chair, and wear for years. I don't know a greater comfort to nervous mothers than to provide a set for the chairs in use, and they save carpets remarkably.

Boys are noisy creatures, that stamp about the house with the tread of a hose company, wear carpets and bring mud indoors insufferably. I don't know anything that wants to be rubber shod more than they, and the remedy for this noisy tread is to treat them as you would the chairs. Have the shoemaker glue a thin sheet of rubber on the sole of the heavy boots, and their power of disturbance is gone. The rubber does not make the feet damp with perspiration, because it does not cover the shoe; it saves the soles from many a wetting, and mud does not stick to it as to leather, for which it seems to have an affinity. The rubber sole can't squeak, or clatter, and the only reason I can discover why every boy and girl in the country isn't rubber shod in this way is because it would make the shoes last too long for the interest of the shoe business. I remember having my shoes rubber-soled when a schoolgirl, and how soundless and what a comfort they were.

Did you ever happen to make a call in a house when you wanted to be sure your hair and bonnet were right after a windy walk, and can you ever forget the dismay of finding no mirror either in the hall or parlor? If I had not more than once found houses that were well furnished otherwise deficient in this respect, I would not mention the point. But some good people seem to think mirrors mere vanity and expense outside of a bedroom. I wish to plead for their right use and convenience about the house. A mirror should not be the friend of vanity, and it is a very poor, weak soul to which it so ministers. It should be, and is, the friend of all that is neat and becoming in dress and behavior, the silent, irresistible conscience which reflects our ill humors, awkwardness and very accidents, without fear or favor, and it is my private conviction there can hardly be too many such glasses about a house.

It is said one reason why the French are such agreeable, well-bred persons is because large mirrors abound in their houses, reflecting their movements and making them conscious of awkward actions at once. There is truth in this, and there can hardly be a better educator in any room than a large mirror.



If you can have things in the house at all to your liking, see that it is well provided with good glasses. One in the hall, certainly, for even the boys like to take a peep, and see that their hair is brushed as they fly out for play, and the young man with the gas bills likes to settle his collar and hat as he waits, and callers always want a glimpse of themselves as they pass in, unless they are carriage people, and have a dressing glass over the front seat. There should be one in each living room, not necessarily a large or prominent glass, but the largest in the sitting-room.

The fashion of mantel mirrors is too good to be given up, as it reflects the attitudes of the group about the fire, and rebukes sprawling or awkward sit-

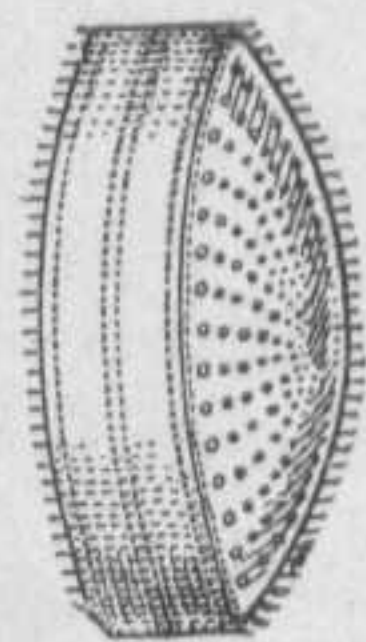
ting. A glass not over a yard long can be hung sideways and tilted to give a pretty good view of the interior of a room. A wide glass hung on the wall opposite the boys' seats in the dining-room, would sooner or later make them aware of sundry tricks of manner you will try long to cure, unless they are brought to see themselves. Mirrors are not expensive compared with what they used to be ten years ago, and a second-hand one reflects just as well as a new one. I suggest that you look closely after the small savings, to allow plenty of "bright reflections on manners," as somebody calls glasses about your house.

It is, after all, simply a case of two teakettles over again.

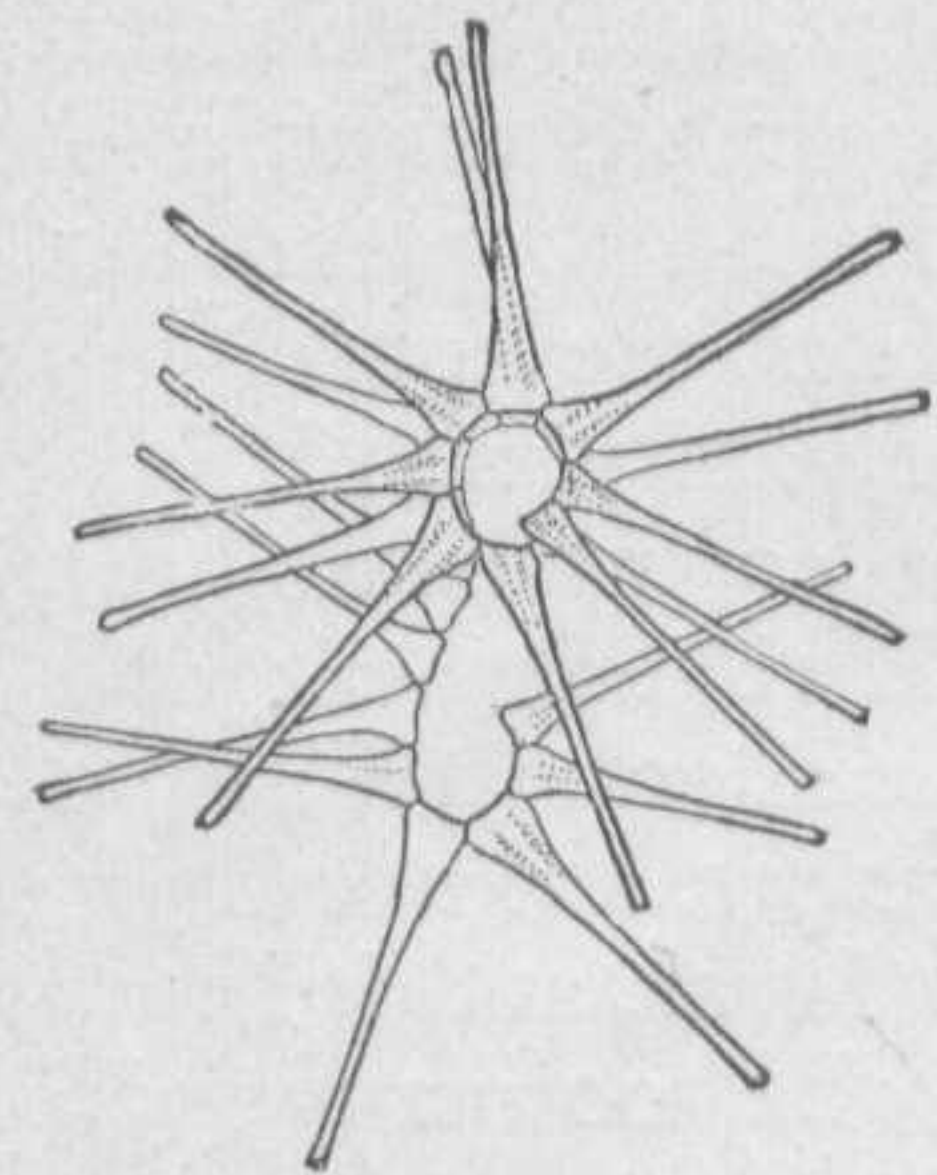
## THROUGH A MICROSCOPE.

BY SAMUEL WELLS.

### VI.



STEPHANODISCUS  
NIAGARÆ.



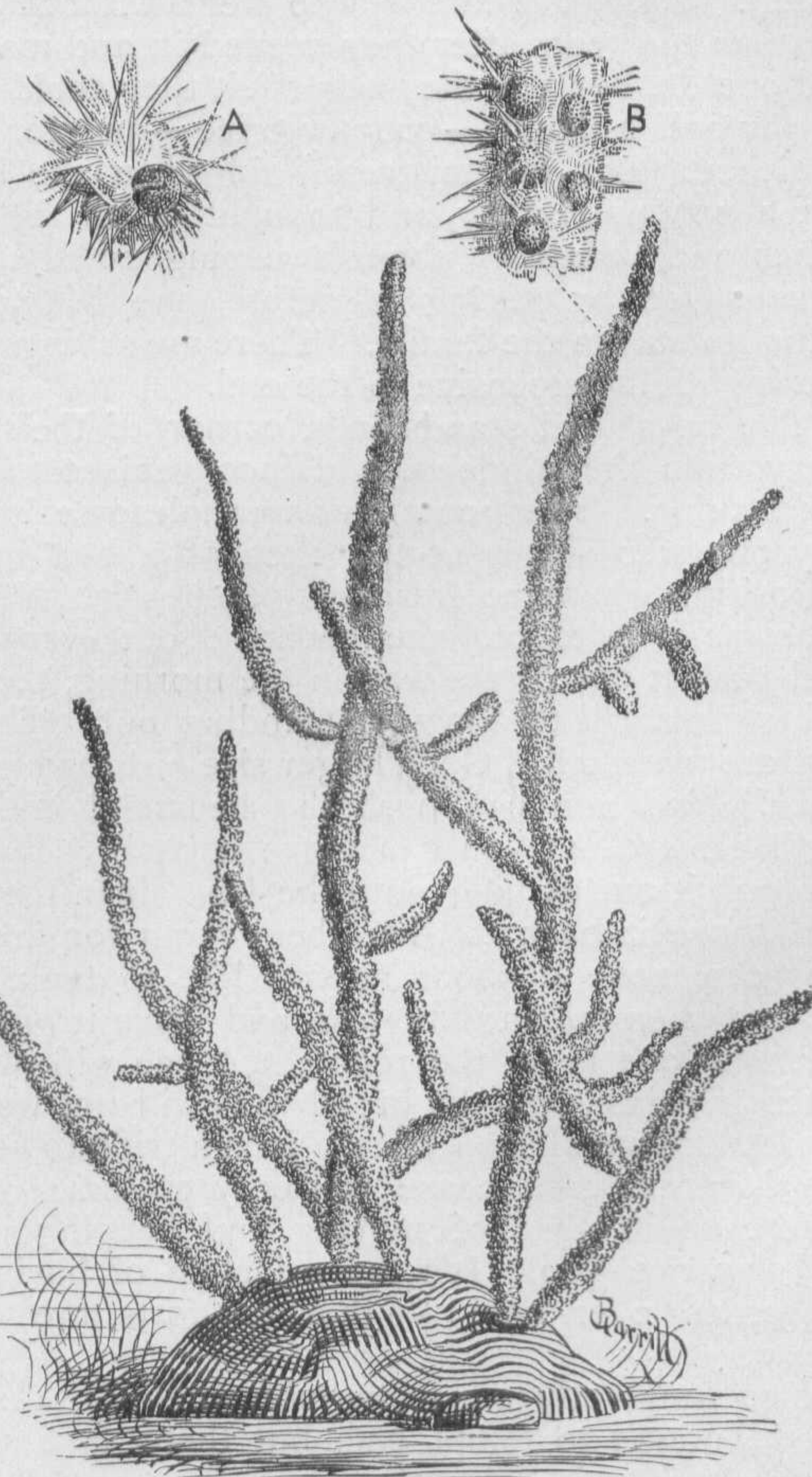
ASTERIONELLA BLEAK-  
LEVII.

THE most beautiful of the small *algæ* or water plants are the *Diatomaceæ* and the *Desmidiaceæ*, sometimes called for brevity diatoms and desmids. They are remarkable for the geometrical character of their forms, consisting of circles, triangles and polygons of infinite variety. They are very small, and cannot be satisfactorily seen with an objective of less power than a four tenths. The diatoms are found everywhere in both fresh and salt water, but the desmids live only in fresh water. One of the most common diatoms in Cochituate water is the *Stephanodiscus Niagareæ*. (Fig. 1.) It is in shape like a pill box, and its sides, which would be called its top and bottom if it were a pill box, are beautifully ornamented with dots

in radiating lines with a ring of spines near the edge. This circle of spines or thorns explains its name, *Stephanodiscus*, from the proto-martyr, Saint Stephen. The name *Niagareæ* is from Niagara River, where it was found. Like all diatoms, it contains when alive a yellowish brown matter with small globules of oil, which is called *endochrome*. The box or shell, called *pustule*, is of silex or quartz, and is therefore almost indestructible;

and when the diatom dies, sinks to the bottom of the water. In this way beds of shells of diatoms are sometimes formed of considerable thickness.

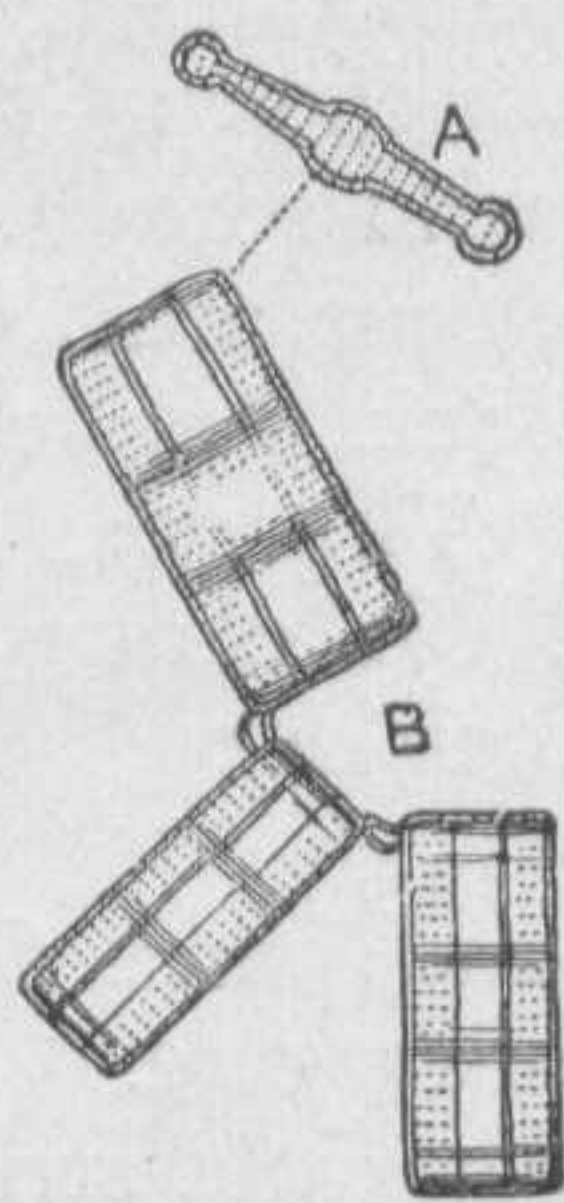
Under the city of Richmond, Va., there is such



SPONGILLA FLUVIATILIS.



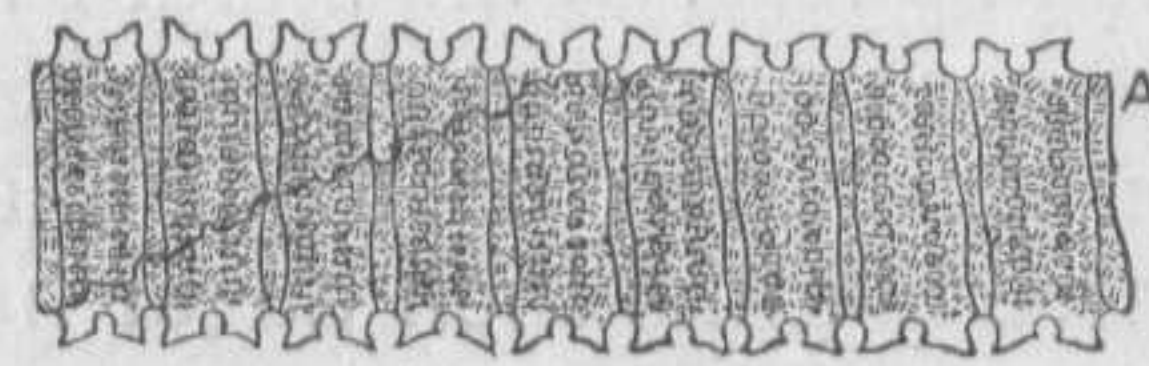
a deposit, varying from ten to twenty feet in depth, and extending for many miles. Some of the diatoms, especially those shaped like a boat, called *Navicula*, have a peculiar motion which at one time led observers to think them animals. No one knows how this motion is produced, and if you can find this out, you will make a very important discovery. The most common diatom in Cochituate water is *Asterionella Bleakleyi*. It resembles a star with rays, or the hub and spokes of a wheel. (Fig. 2.) This diatom is often found in abundance in the water supplies of cities. It never forms a complete circle, but grows into spirals or whorls which easily break up.



TABELLARIA FENESTRATA.

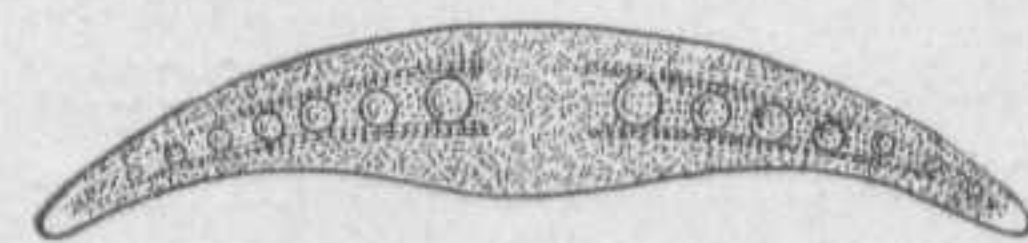
Another diatom common in Cochituate is *Tabellaria Fenestrata*, which grows in ribbon-like forms. (Fig. 3.) The desmids resemble the diatoms in the geometrical character of their forms, but they have no shell of silex, and are therefore easily destroyed. They are readily distinguished at sight by the beautiful green color of the contained matter. In many of them there is a curious circulation of small particles, especially in the ends of those of a crescent or new-moon shape. This circulation can only be seen with a high power. Desmids are easily found in ponds and ditches; and there are several species in Cochituate. Among them is *Desmidium Swartzii* (fig. 4), and *Closterium moniliferum*. (Fig. 5.) Their beauty depends so much on color that they do not appear to advantage in the figures. You will find in examining the filterings of Cochituate water, many objects which have not been described in these papers, and among them many fragments of green filaments of the small

plants belonging to the *confervaceæ* and *oscillatoricæ*; sometimes you will find small round opaque forms of brown or green color, which are probably spores of plants of a larger growth; sometimes you will see the pollen of pine-trees which has fallen into the water and looks like three small balls fastened together; sometimes, though rarely, you may find one of those curious little creatures called water bears, or *tardigrada*; and you may be fortunate enough to catch a water spider.



DESMIDIUM SWARTZII. FRONT AND SIDE VIEW.

But you will often see the *spiculæ* of the sponge, called *Spongilla fluviatilis*. They look like pins of glass, blunt at one end and pointed at the other, and are sometimes very abundant. You may have heard that this sponge has been considered the source of the occasionally bad taste and smell of Cochituate



CLOSTERIUM MONILIFERUM.

water. When it is alive, it is not disagreeable, but when it decays it imparts to the water a very unpleasant taste and odor. It certainly is one

cause of the bad quality of the water, but whether it is entitled to the sole credit is still open to question.

You can see what it looks like in fig. 6. When alive, it is of a light-green color, but when decayed it becomes brown. It is full of the *spiculæ* above described, which serve to stiffen it, but it easily crumbles and scatters them through the water.

Though the microscope shows us many beautiful and interesting objects, yet in the present state of our knowledge we cannot ascertain by its use whether the water we examine is harmless or injurious.

## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

### VI.

#### HOW TO MAKE A TOOL CABINET. (Continued.)

AFTER shelf *A* is fitted in this way, you will nail it into its place in cabinet so that the top of shelf is just seven inches above top of lower shelf, or bottom of cabinet which serves for a shelf.

After the shelf is fitted into its place in the cabinet, you will find that at one end you have a convenient little tray to hold such things as chalk-line, rule, pencils, and other small things that are always getting

out of sight when you most need them. The plan for *A* is just six inches above lower shelf (or bottom of cabinet).

N. B. All measurements now are inside measurements.

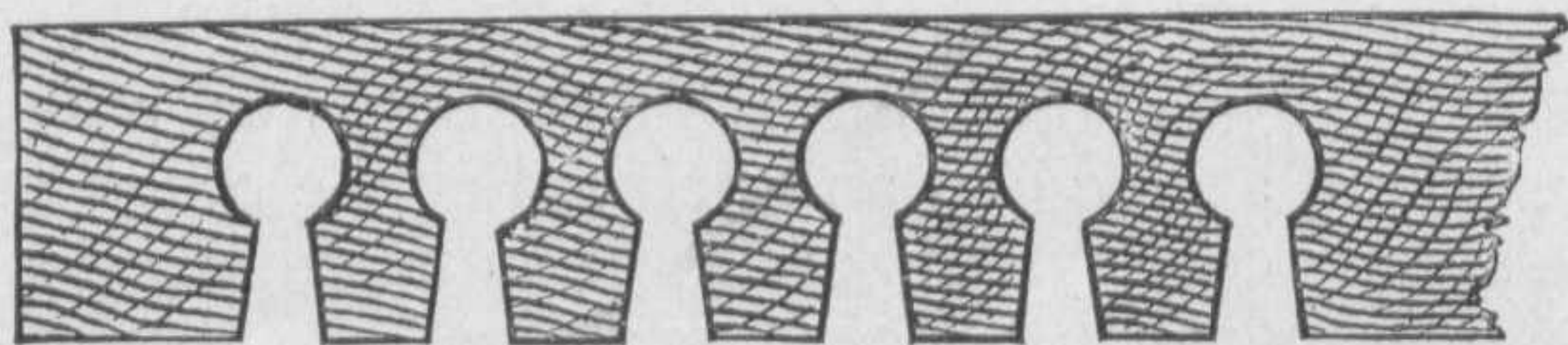
*B* is twenty-two and one fourth inches long and two and one half inches wide. Draw a line down the middle of this strip (i. e., one and one fourth inches from each side). Measure one inch from left-hand end and mark. Then from this point on pencil line measure one and one half inches and mark again. Repeat this until you have six points marked on the



pencil line, with one and one half inch spaces between. From the last point measure one inch, and mark. Repeat at intervals of one inch until you have thirteen with inch spaces. This should leave about three fourths of an inch on right end.

On the first six marks (those one and one half inches apart) bore five eighths inch auger holes. These are for tool sockets. First two for the chisels you have already; next three for the chisels or gouges you may have; the last for the screwdriver.

There must be doors for the tools to enter by; so you must cut openings one half inch wide from the front of shelf to each hole. This is easily done with your cross-cut saw, leaving spaces like this:



TOOL-DOORS.

You have still thirteen marks with inch spaces. Bore nine holes a trifle larger than the shanks of the bits you are to place therein; three of these bits you already have; the other six spaces are for the bits you are likely to purchase by and by.

The four remaining marks are for holes graduated in size, thus: First, one with three eighths inch bit (one of those belonging to smaller set); second, with one fourth inch; third and fourth, with the next smaller sizes; each bit going into a hole a size larger than itself. These smaller bits go in *point down*. It will be a great convenience to mark the numbers of the bits on the shelf against their sockets.

Shelf *B* is to be nailed twenty and one fourth inches above shelf *A*.

Now for shelf *C*. Ten inches from left-hand end, put small one half inch block for same purpose as similar block on shelf *A*; i. e., to keep plane from sliding. Nail shelf *C* three inches above shelf *A* in left-hand side of cabinet. This little shelf of course does not reach across the cabinet like the others.

Six and one fourth inches above shelf *C*, and four inches from left-hand side of cabinet, bore hole with one half inch bit, which shall have a slant downward. Parallel to this, and eight inches to the right, make another hole just like it. Insert in these holes wooden pegs two inches long. Be sure they fit firmly with back of cabinet. These pegs are for the draw-shave to hang upon, as seen in diagram.

Ten and three fourth inches above shelf *A*, and three inches from right-hand side, make one half inch hole slanting down; one and one half inches beyond make another; insert pegs three inches long. These are for the mallet.

The body of the cabinet is now fitted, and we will go to work on the cover.

Take two blocks one inch square and one and one half inches long; draw a line lengthwise exactly in

the centre of each; cut down the line one half inch deep the length of block. Put one of these blocks slit uppermost on bottom shelf of door four inches from left-hand corner. Five and one half inches to the right, put the other; fasten into place with screws.

Twenty-one inches above first block, four and one half inches from side of door, put block one inch square, one and one half inches long. This goes on horizontally, parallel with lower block. In centre of this make small hole, say one fourth inch deep, with smallest bit.

Make a second block just like it, and place five and one half inches to the right of the first one.

Then from one half inch wood, cut two little strips two inches long, one half inch wide, for buttons. In the middle bore hole large enough for screw to turn freely; attach to middle of upper blocks with screws. The tips of the saw-blades go into the slits in the lower blocks. The openings in the handles slip over the wooden buttons which you have just made, and which are horizontal when the saws are put on, and are then turned like the button on a barn door to hold the saws firmly in place.

Now we must provide for the hatchet, so it will not get harm nor do harm.

Take block of one inch wood, five inches long, three inches wide; plane one half of one face in a slant from the middle, so one edge will be three fourths thick, leaving one half the block one inch thick, as at first. Bore two holes in the half that is still square, big enough for two screws to go through and fasten on to lower shelf or bottom of door. This block in its place is one inch wide at the bottom, and three fourths inches at top, leaving a kind of bevel five inches long for hatchet-blade, between block and back of door. Put hatchet in; hold it upright and mark where handle needs support to keep it horizontal; probably about nine inches from blade; with screws fasten on two small brackets, or else put in slanting pegs, if you do not care about the looks outside.

Four inches from top, and five and one half inches from left-hand side, put similar bracket or peg; three and one half inches further, on the same line, put another; these will serve to support the bit brace, and I have left enough room for the keyhole-saw, which you can see in the diagram, and which some time you will like to own.

Now cut a piece of wood three inches long, two inches wide, and three fourths inches thick; draw line across one end and down the edge two inches long.

Cut this line out as you did for the slits for the saws, and then (slit up of course) with two screws put through the lower part, fasten block at point ten inches from right-hand side, just far enough above the saws to clear them. This is for the try square, the slit being for the blade.

Fifteen inches from left-hand side, and four inches from top, put a bracket; on the same line, one and



one half inches farther from the left side, put another; these are for the hammer.

You now have all your tools in place. You will in all probability have had some tools in the house before we began, such as pincers, gimblets, perhaps

a saw; but of course I have not a list of those things.

So I have simply given you a good deal of room to put them in, and by this time you ought to know how to secure them in their places.

## DAYS AND NIGHTS IN THE TROPICS.

BY FELIX L. OSWALD.

### CHAPTER I. (*Continued.*)

#### A BRAZILIAN FOREST.

I do not know if he had any adventures in his dreams, but as long as he kept his eyes open he was as restless as a squirrel-monkey. No tree was too high for him. He was bound to have a ride on every horse on the highway, and rather than let a good butterfly get away, he would follow it through brakes and brambles with an energy that obliged us to buy him a leather jacket and fasten his hat with a saddle-strap. He was an orphan of a Spanish sea-captain, and had lived several years in Rio Janeiro in the house of a gentleman who had taken a great fancy to him, and would have kept him if Monito's scrapes had not been rather too expensive for a city household.

Near the landing of Lagunas the river is flanked with a belt of swampy bottomlands where we had to cut down bundles of bulrushes to help our mules across the quagmire, but after three hours of hard work we came to the wooded uplands, and our troubles were forgotten; we had reached our zoölogical hunting-grounds, and the tropical forest with all its wonders was before us. Almost at the edge of the woods Benny managed to catch a leguan, or tree-lizard, a creature as heavy as a young pig and twice as long. The thing ran like the wind, but Benny chased it from bush to bush, and finally into a tree, where he captured it in the top branches, though the thorns of a prickly vine scratched his arms up to the elbows. In order to utilize his climbing propensities, I asked him to pick us a basketful of the fine wild grapes that hung in clusters from the wayside trees. In Southern Brazil a man could live pretty well on the spontaneous products of the woods. At a ford of the Rio Branco we met a countryman who asked us a great many questions about the Lagunas market-prices, and in return I inquired about the wild-growing fruits of the neighborhood.

"We have some twenty different kinds of berries and nuts," said he, "besides currants and plums and wild pine-apples; but the best thing you can find at

this time of the year are the *pelodas*" (a kind of sweet acorn); "last week my boys picked about forty bushels of them, and yesterday we ground a lot of them up and baked them into biscuit."

On the other side of the river we came through a wood where the ground was literally covered with this sort of forest-bread. The *pelodas* resemble an acorn in shape, but their flavor reminds one of filberts as well as of sweet chestnuts, and boiling makes them as mealy as sweet potatoes. While we gathered a sackful of them, Benny and the mule-boy had taken a stroll along the creek into a thicket of currant bushes, and presently I heard a noise as if a thousand jaybirds were screaming together with all their might, and we were just going to investigate the matter, when Juan, the mule-boy, came back again almost choked with laughter. I asked him for an explanation, but he insisted that I must see the fun myself; and when we arrived at the scene of the uproar, I saw at once that Benny had got himself into another scrape. Near the bank of the creek a swarm of *picazos*, or Iris-crows, had established their household in the top of a catalpa-tree, and hearing the twittering of their young ones, our little monkey-man at once decided to pay them a visit. It appeared that he had already reached the upper branches when the *picazos* fell upon him like a swarm of hornets, and charged him again and again with a fury that seemed to have scared him completely out of his wits.

He was clutching the tree and calling loudly for help, for the worst of it was that the crows prevented his retreat as well as his advance; they would not let him stir at all, and the moment he made the least motion they darted at his head as if they were going to scalp him. But by good luck the creek-bed was full of loose pebbles, and after we had knocked down three or four of the screamers, the rest moderated their remarks and permitted their enemy to effect his retreat.

"Why, what's the matter, Monito?" laughed the mule-boy, when Benny shook his fist at the tree; "what were you and those things talking about? I could not understand a word you said; I suppose you



must have talked Portuguese, like uncle Ike when he gets mad."

Benny scratched his head and made no reply, but ten minutes after he contrived to scare up another adventure, and started in pursuit of a palm-squirrel that crossed our road and led him a wild chase through the thickets of the creek bottom.

In the forests of Southern Brazil the first forty minutes after sundown are almost as noisy as the first morning hour, and in the coast swamps the screams of the water-birds often continue till morning; but in the uplands the worst noise is over before midnight, and in our first camp it was our own fault that we did not get a good night's rest. We had pitched our tent at the head of a little lagoon, and already finished our supper, when we discovered that the trees above our camp were overgrown with Spanish moss, the best material for making a comfortable bed. Some of the tufts seemed to hang low enough to be reached from the ground, and if the night had not been so very dark, we could soon have gathered moss enough to cover the whole floor of our tent.

"Just wait," said Juan, "in about ten minutes we shall have all the light we want."

"How? moonlight?" asked the captain.

"No, better than that," said Juan; "when I was hunting firewood upon that bluff, I found a big turpentine-tree" (a sort of rosin-pine), "all hollow and dripping with pitch. If you will lend me a hatchet I will soon make it light enough to hunt butterflies. Benny can help me if he isn't asleep yet."

"No, he isn't!" Benny called out of the tent.

"Yes; please let us try that and have some fun!"

The night threatened to become pitch-dark, and as a good bonfire would have helped our grazing mules, the captain approved the plan, and helped Juan and Benny fill their sack with dry chips and carry it to the top of the bluff. If we had set fire to a house full of tar barrels, the result could not have been more surprising. As soon as we lighted our fagots, streaks of fitful flames twirled up the bark of the tree, the rosin under the bark began to seethe and flicker, and suddenly the whole tree burst out in a conflagration that shot up like an explosion of fireworks and lighted up the woods near and far.

"Listen!" said the captain; "do you hear that? There's somebody living near here, it seems. I hope we have not got any poor folks into trouble."

The conflagration rose higher and higher, but through the rush of the flames we heard another sound; a shrill whistle, that seemed to come from the top of the bluff and soon from all sides at once, while flitting shadows darted to and fro and circled around the fire. The noise increased with the uprising flames, and now when it was too late to stop the fire, we found that the captain had been right; there was really somebody living here, and the poor folks we had got into trouble were a colony of bats who had their nests in the hollow tree, and who were now obliged to change their quarters at extremely short

notice. Family after family whisked out of the knot holes in hot haste, and, as people will do under such circumstances, they gave us a bit of their mind, and their voices became as shrill and loud as a boatsman's whistle. Unlike the *picazos*, they did not venture to attack us, but their screams were far more disagreeable and increased in violence, for we had no means to pacify them, and long after their tree had become a smoking cinder-heap, we heard them shriek in the air like winged spectres of the night.

## CHAPTER II.

### IN AN INDIAN CAMP.

The people in Lagunas had told our guide that near the falls of the Tocantins River a tribe of wandering Indians had established a camp where we would have a chance to buy stuffed birds or the hide of one of those speckled swamp-boas which form the favorite food of the Brazilian redskins. In the neighborhood of the falls we heard now and then the baying of an Indian hound, but the Indians themselves had disappeared, and it was nearly noon before we got any clew to their whereabouts. Our road followed the windings of the Tocantins, which here forms a series of rapids, alternating with *hondas* or deep-water pools, and at one of these pools we came upon two Indian boys who had been angling for crawfish, but at sight of our cavalcade, they suddenly snatched up their angles and took to their heels.

After running a hundred yards or so, they would stop and stare at us like half-wild calves in the prairie, but when we quickened our pace, they too ran faster and further than before.

"Their tribe has come down from the Matto Grosso hunting-grounds," laughed the guide, "and I wonder if they have ever seen a white man's face before. Let's follow them, anyhow; they will make for their camp if they get thoroughly scared."

The young savages had turned off to the right and stopped as if waiting for us to pass, but seeing that we were on their tracks, they gathered themselves up and ran off, whooping and yelling.

"Shall I head them off?" asked Juan.

"Never mind," said the guide, "their camp cannot be far from here; they won't leave a good fishing-river if they can help it."

He was right; while he yet spoke the whoops of the boys were answered by a shout from the woods, and at the end of a grassy lawn, not more than a thousand yards from the river-shore, we descried the lodges of the Indian wigwam.

"*Solamente amigos* — friends, nothing but friends," the guide called out when a fellow with a two-forked spear came running down the lawn. The Indian stopped. "*Que vengan* — come on, then," he called back, and picked up a stone to scare off the dogs that seemed to doubt the sincerity of our statement.

"We are all right now," said the captain; "one of



them talk Spanish, it seems, and their camp looks big enough for a good trade."

The man with the fish-spear met us half-way, and scrutinized us with evident curiosity.

"Emperor's men" (Brazilian officers), he muttered. "Come this way," directing us to a lodge at the upper end of the camp. "Is that the tent of your chief?" inquired the captain.

"Yes, of our king; the young king," replied the Indian.

"The *young* king? where is the old one?"

The spearman pointed to the west. "We buried him in Matto Grosso," said he, "in a great tomb of stones and red clay."

"A great chief, was he?"

"Yes, the grandest you ever saw," said the Indian solemnly; "he owned three pigs and a shot-gun. Here's his son, our young king," said he, as he ushered us into the presence of a large, fat savage, whose principal garment consisted of a ragged army cloak, embroidered with two or three pegs of common quartz stones that dangled from his collar like the bells of a horse-sleigh. A row of similar stones trailed at the tail-end of his cloak, and by the way he strutted about, he seemed to feel how much they contributed to the importance of his position. The family of this weighty potentate received us with the best good humor, but I am sorry to state that the same could not be said of their manners. After accepting a present of ginger candy, they began to examine our clothes, our persons and our baggage; and when the king succeeded in opening our mess-bag, he did not hesitate to help himself to a share of our provisions. The captain's long beard seemed to excite his particular curiosity. He combed it with his fingers, pulled it backward and forward, and then proceeded to examine the owner's jaws, and even his teeth; and when the captain pushed him back, he stroked his head, as a

man would pat an unruly horse. The behavior of the young princes was equally undignified. One of them appropriated Benny's red handkerchief and declined to return it till we offered to exchange it for a large piece of wheat bread. His brother attempted to tickle my ribs with a spoon, and, after offering me a pine-apple, suddenly snatched it away, and then hid himself behind a bench, as if he expected to see me break out into a tearing passion. After a long parley, we proceeded to exchange presents. They had no boa-hide, but a great variety of sun-dried bird-skins, and a box full of tropical beetles whose colors rivalled those of the Brazilian butterflies. The Brazilians preserve collections of that kind by rubbing them with an ointment of a penetrating and not very agreeable aroma, but the ravages of the tropical ants require such precautions.

"Have you any living animals?" I asked the spearman, who acted as our interpreter.

"Yes, a tame monkey and a pig," said he; "but they are both sacred, and used to belong to the family of the old king. Our *bruxo* (wizard, a sort of medicine man) is not at home, and we cannot sell them without his permission."

"We have a bag full of blue pearls," said I; "could you not sell us the monkey and keep the pig?"

They had a private consultation, and opinions seemed to differ; but at last they fetched in a black Colobo, or Satan-monkey, and informed us that rather than let us depart in sorrow, they had concluded to sell him for two hundred glass pearls (worth about twenty cents).

"You may put him in a cage," said the interpreter; "but in speaking to him you must avoid all impolite terms, for he is used to be treated with great respect."

(TO BE CONTINUED.)

## WHAT TO DO ABOUT IT.

L. R. B. wants something that will sell well for a little missionary society which is tired of making iron holders and sweeping caps. Try knitting wristlets of garnet wool finished with crimson, for ladies to wear in winter instead of cuffs, and cotton flannel mittens for housekeepers. Patchwork in tiny blocks an inch and a half square, of fine cambric and percale is pretty. Flannel chest protectors are easily made, as they have only to be cut out and bound. But if you want to do genuinely useful and profitable work, learn to knit new heels, toes and knees to children's worn stockings, and make a specialty of it for busy mothers. Did you ever try fitting on thinking caps?

ETHEL. — "Please tell us what kind of paste the

Professor of Pasting uses. Also how to make a paste that will keep without moulding." The best paste for common use is boiled flour paste with a half-teaspoonful of carbolic acid and ten drops of oil of cloves to the pint.

KATE E. H. — "I have grown so thin the past year that I feel very badly about it. Will you tell the very best things I can eat to gain flesh?" Plumpness depends on many things beside eating. Sleep, for instance, has much to do with freshness and fleshiness. A girl in her teens who goes to parties three times a week, lives in an ill-ventilated schoolroom or sitting-room, and is fond of excitement, is certain to grow thin. Sleep all you can; it is evident you need



it. From half-past nine at night to six in the morning is not at all too much for young, growing girls, especially if they lead active lives. Take warm baths at night, sit in the sun, and walk in the open air. Eat cracked wheat and cream or beef gravy for breakfast, with juicy steak, and use the wheat as a part of each meal, as a vegetable with meats at dinner, with fruit and milk at supper. Take a dose fifteen minutes before each meal of the juice of an orange with one tablespoonful of pure olive or salad oil; and, if liked, one teaspoonful of honey. Eat dates and figs in plenty. Turkish women fatten themselves on a paste of dates, almonds and milk. Use no white bread, and little cake or pastry, and see of what form you are in three months.

DOT. — "I will be fifteen years old the coming January. The following August I have been invited to go with the Knights Templars to California. I do not know by what route they go. Please tell me what I can read between now and then that will make the trip by either route (starting from Cleveland) profitable and pleasant." Read *The Santa Fé Trail*, by Dr. Hayes, *Colorado Days*, by Helen Hunt Jackson, *My First Vacation*, by Mrs. Caroline H. Dall, and *Knocking Around the Rockies*, by Ernest Ingersoll. *The Round Trip*, by Capt. John Codman, will tell you more about California than any other book except Herr Nordhoff's *California*. Mrs. Dall's book and Mrs. Jackson's give very fair ideas of the country and society you will meet.

FRANK E. S. — "Please tell me how I can strengthen my ankles so that I can skate. I can run as fast as any boy, but when I go to skate my ankles turn." The ankle is apt to turn till one grows used to skating, but if yours really are weak, as happens with growing boys, you can strengthen them by bathing every night with cold water, and rubbing well; by a lotion of a tablespoonful of rock salt, dissolved in a teacup of alcohol; by anointing with deer fat, and rubbing in well; and by using vasaline on them at night. Have high shoes which button snugly round the ankle and support it. And let me know in time if any of these remedies help you.

ETHEL S. inquires how to play a card game called Society, which was given her without instructions, and ask for a reply by mail, "because it is not a matter that will interest the other girls." I am sorry, but it is out of the question to give private answers from this department, and correspondents will kindly remember this for the future. There would not be time to answer questions for the WIDE AWAKE were I to begin sending private replies.

M. M. "Will you tell me the address of Mr. Samuel Wells, who writes the articles on the micro-

scope?" Any contributors to this magazine may be reached by sending letters to them addressed care of the WIDE AWAKE, Boston, Mass. Your second question can be best answered by writing to the gentleman.

BESSIE M. 1. "Please give me directions for using odds and ends of single zephyr worsted. I would rather work on canvas." Work lozenges or diamonds of different colors in the cross-stitch now fashionable, dividing them with stitched lines of black, white or gold silk. Make shaded, tufted "daisy mats." Those who do much fancy work find it best to save odd skeins of worsted, which come in use occasionally when the supply runs short.

2. "Please tell me a nice society object for girls from thirteen to sixteen. Something that is *fun* and interesting." Try a work-society to learn different fancy stitches, the object of which will be to provide each girl with a full set of pretty things for her own room, or make up tidies, mats, brush-holders and such articles for some teacher or busy woman who cannot do the work for herself. Make *help* the object, and the fun will come of itself.

3. Which game of "Pi" do you inquire about? The common one is played by selecting the cardboard letters which spell a word, mixing them and passing to another person who finds the word without telling. It is also called Word-making.

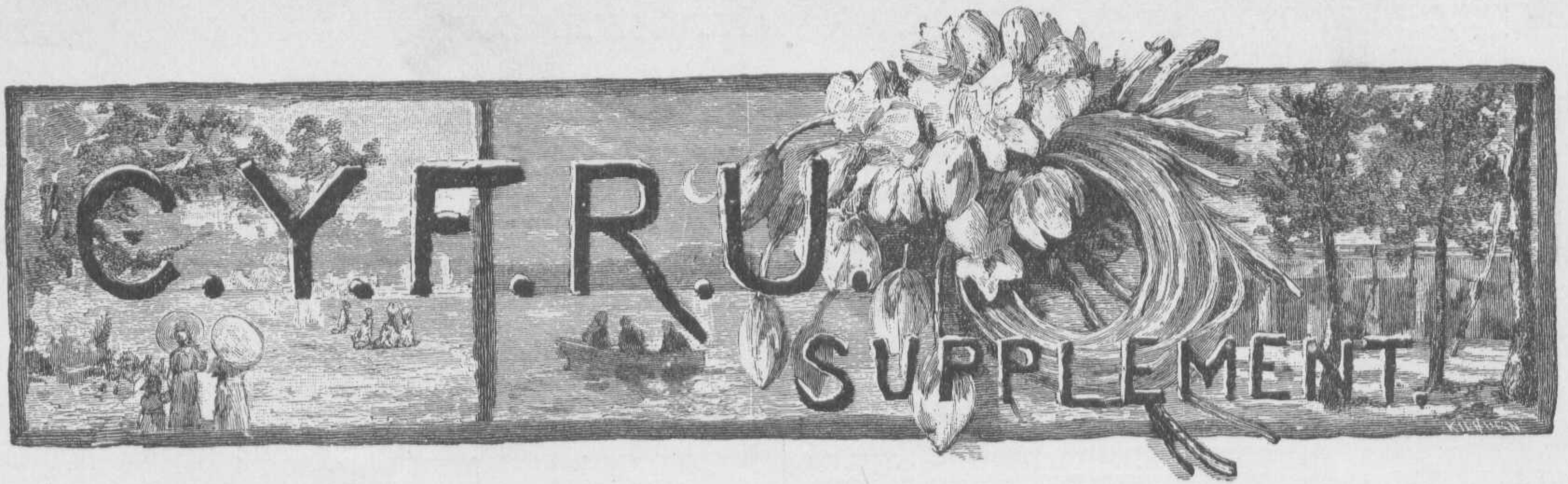
NEWARK wants the address of an author who "writes such nice fairy stories." Once again, I repeat that any author of any magazine may be reached by sending a letter to the person, in care of the publishers or editors. But young readers may remember that writers in general are very busy people, and reflect well whether it is worth while to take up a busy man's time to read and answer letters, written because some juvenile admirer did not know what else to do with his idle hours.

DOT AVONDALE. 1. "Will you tell me a few books interesting as well as instructive for a girl of fifteen to read." Try Maria Edgeworth's novels, and Jane Austen's. Miss Mitford's *Our Village*, Mrs. Gaskell's *Crawford*, the first part of Miss Martineau's *Autobiography*, Good's *Book of Nature*, Shirley Hibberd's *Book of Wild Flowers*, and *British Sea Mosses*, if you have any taste for natural things.

2. "Do you prefer the angular or round hand for a lady to write?" The angular English hand has been considered the fashionable style for many years, and it is easier to adopt than the Italian or round hand which all ladies were taught till the last twenty-five years. A plain handwriting easily read is the distinguishing mark of a lady's correspondence.

THE WISE BLACKBIRD.





## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### VII.

CHARLES KINGSLEY.

THERE are three portions of England which to all lovers of Charles Kingsley will always be associated with his memory — the wild, rocky coast of Devon, where Ilfracombe and Clovelly are, from whence the

Three fishers went sailing out into the west,  
Out into the west as the sun went down;

the Fen country, up towards the German Ocean; and that neighborhood at the south round about beloved Eversley.

The last place was his home for thirty-three years, where his parish and his people were, where his life-work was, where he died and was buried — who does not know about Eversley, the old rectory, the children, the dogs, the fir-trees on the lawn, the cottages, the Sunday services, and the man who was its joy and pride; who pervaded it with his presence? Eversley, his first and only parish, is in Hampshire, on the borders of the old Royal Forest of Windsor; it was the county of Gilbert White and Jane Austen, and the one in which Miss Mitford was born. The scenery is pleasing, but has not the strangeness of the Fens, and is tame compared with the west coast of Devon.

These things are mentioned because places, natural scenery, had a great deal of influence over him, a great deal to do with his happiness, and his health both of mind and body. He was exceedingly impressionable when a child; born with an enthusiastic temperament; and ardent, full of fire and vigor, though tender as a woman, he continued to be to the end. An out-of-door boy; a man fond of fishing or climbing a mountain, or galloping over the moors, or walking twenty-five miles at a stretch; working at a white heat, and enjoying at the same high pressure.

His birthplace was in Devonshire, in the small parish of Holne where his father was vicar. When he was about five, the family moved up into "the Fens" in one of the eastern counties bordering on Lincolnshire, where they stayed six years and then went back to Devon; but this time to romantic Ilfracombe, and then to Clovelly, more romantic still, hanging on the cliffs against which the Atlantic pounds in the westerly storms. Ever after, he had a mighty love for these unlike regions; and when asked only a year or two before his death what was his favorite kind of scenery, his reply was, "wide flats and the open sea;" and which of all places at home or abroad he most admired, he said "Clovelly."

The Fen country, with its leagues of reedy marsh and wide stretches of upland made an impression on his childish mind that was never forgotten, and long after he pictured it and wove a historical novel, *Hereward the Wake*, out of its traditions. It is the story of the last of the English; son of that Lady Godiva who rode through Coventry. In the prelude there is a fine description of the low, flat scenery, and there is still another in his first prose work, *Alton Locke*. Have you ever thought as you read about the Fens, in English history, poetry, or tales, what kind of country was meant? Can you not fancy it, low-lying, green with meadows, and the roofs and towers of many an ancient town, like St. Botolph's, dark against the sky? Read *The High Tide of Lincolnshire*, and think what it is like; and *Mariana in the Moated Grange*, for Tennyson, too, must have had it in mind when he wrote about "the glooming flats," and

The level waste, the rounding gray.

A new chapter opened in the life of Kingsley the year after the family went to Clovelly, for he then left home for the first time to go to school, and then came college, after which preparation for his profession, and at twenty-three settling down at Eversley;



but the sea had been an inspiration to him, and ever after, when hard worked he found strength and exaltation in going back among the fisher-folk and sailors, climbing about the cliffs and rambling on the sands with his wife and children.

The scene of another historical novel, *Westward Ho; or, the Voyages and Adventures of Sir Amyas Leigh*, was laid on the Devon and Cornwall coast; and this book is full of the writer. He passionately loved a hero; great deeds stirred him in every pulse; if he had lived in the days of chivalry he would have been one of the foremost knights in the Crusade. There was so much of the adventurous in him that he could not help being one in spirit with those old explorers who sailed westward; to Kingsley the very word "west" had a fascination; so early as at the age of twenty he had an almost overpowering desire to leave college and go to the Far West in America, "and live as a wild prairie hunter." When, after many years he spent a Christmas vacation in the West Indies, he was reluctant to turn his face from those western isles, and he put his enthusiasm and observation into a book which he entitled *At Last*.

He wrote *Westward Ho* while living right in the midst of the scenery described in it. The story is of Queen Elizabeth's time—the time and the adventures of Sir Humphrey Gilbert, and Raleigh, and some of those brave men, those "sea dogs," who were, he says, "heroic, manful and godly, a type of English virtue" as it was lived in those olden days. He brings in Martin Frobisher, one of the first to search for the Northwest passage, and describes the vessel lying high and dry in which Drake had sailed round the world, and tells the story of the Spanish Armada. Kingsley, like all impulsive writers, had the gift of throwing himself right into his work, and where he deals with history he makes the past live again.

It was on the coast that he wrote one of his books on natural history—a subject which he had great taste for—"in answer to the supposed question, 'What branch of Natural History shall I begin to investigate, if it be but for a few weeks this summer?'" To which I answer, 'Try *The Wonders of the Shore*,' such as sea flowers and sea creatures, dredged for and collected during a vacation, by himself and his children, and a minute account of them written every night, the result of which was the volume called *Glaucus*.

Another book, one of his latest as well as best, abounding with inimitable fun and nonsense, must have owed its origin to some of his experiences there, and along the brooks and rivers while fishing—I mean that most captivating of fairy stories, *The Water Babies, a Fairy Tale for a Land Baby*. The said "land baby" was only four years old; but it is good for people of twenty, thirty, forty; even men and women nearer sixty have laughed over its rollicking pages, and been sad over that tearful second chapter, which is as pathetic as anything about Dickens' Little

Nell and her grandfather, or his Florence and little Paul. No matter if it does give some smart raps at the United States of America—who cares? We can enjoy it just the same. It shows the jolly, witty side of Kingsley, his fondness for the utterly preposterous and absurd; he gives himself up to his fancy and lets it run away with him; and the way things get themselves on paper, and the strings of adjectives, are a perfect delight. It is a story that just wrote itself—an inspiration. Mrs. Kingsley tells in the memoir how it flowed out of his brain, and how "the copy went up to the printer with scarcely a flaw." It is too bad that there is not space here to tell about its hits and its wit and its logic, and the deep truths there are under all that irresistible nonsense; and to quote from those touching pages about poor Tom's flight, and those exquisite descriptions of the country side, the salmon fishing, the otters, the eels, the trout, which Kingsley knew all about; to quote, too, some of the golden-rule doctrines of Mrs. Doasyouwould-bedoneby, and what Roger Ascham's stick says about those "foolish fathers and mothers," who, instead of letting their children "pick flowers, and make dirt-pies, and get birds' nests, and dance round the gooseberry bush, as little children should, kept them always at lessons, working, working, working, learning week-day lessons all week-days, and Sunday lessons all Sunday, and weekly examinations every Saturday, and monthly examinations every month, and yearly examinations every year, everything seven times over, as if once was not enough, and enough as good as a feast—till their brains grew big and their bodies grew small, and they were all changed into turnips, with little but water inside."

That was a lovely idea of Charles Kingsley's, to write books for his own children; for the youngest was *Water Babies*; and for his Rose, Maurice and Mary was *The Heroes, or Greek Fairy Tales*, illustrated by himself, written in prose form, but with a sort of ballad swing; a ballad that does not rhyme. They are the stories of Perseus, The Argonauts, and Theseus. He says:

There are no fairy tales like those old Greek ones for beauty and wisdom and truth, and for making children love noble deeds and trust in God to help them through. . . . The stories are not all true, of course, nor half of them; you are not simple enough to fancy that; but the meaning of them is true, and true forever, and that is—do right and God will help you.

Still another book, for the youngest son and his schoolmates, had in view the young folks who are always inquiring into things, and tells how the earth is formed, "glens and valleys, plains and downs, banks and knolls, hills and mountains," and it has the title of *Madam How and Lady Why*; and the teaching wove in a book so full of scientific facts, is "Keep your soul and body pure, humble, busy, pious, in one word, be good."

Through everything that he wrote, whether for old or young, run these golden truths, like a bright thread in a web, so bright that you never lose sight of it, and



it lightens up all the rest. His favorite motto was, "Be strong;" by which he meant all that these words can convey. Be manly; be womanly; dare to do what you know to be right; keep yourself free from sham and pretense; be thorough; be honest with yourself; and honor and value truth as one of the very highest of all virtues. It was the one he most admired, and towards lying he was less tolerant than towards any other vice.

He believed that in this nineteenth century, you

Can find a work to do, and a noble work to do, chivalrous work to do — just as chivalrous as if you lived in any old fairy land, such as Spenser talked of in his *Faery Queen*. Now you can be as true a knight-errant, or lady-errant in the present century, as if you had lived far away in the dark ages of violence and rapine;

and all by doing first the duty which lies nearest you, "in those simple everyday rotations and duties of life which are most divine because they are most human;" and "Do what is right the best way you can," but remembering always that "right doing does not atone for wrong doing."

Such was the spirit of his teaching and preaching.

For your own sakes, if not for God's sake, keep alive in the sense of what is, and you know to be, good, noble, and beautiful, I don't mean beautiful in art, but beautiful in morals.

To the ladies who were teaching boys among the poor in London, he recommended that they "show them courtesy, self-restraint, reverence for plainness, weakness, admiration of tenderness and gentleness." He himself did a great work for his own village people, laboring men and women, writing some of the best sermons for them, many of which were published with the title of *Village Sermons*, and were widely read; and in his books were living truths from which he often heard through grateful letters from sailors and soldiers, and persons scattered about all over the world whom he never saw.

So passed his life, in wearing work; varied by brief

spells when he sought refreshment to his tired brain by a few days' fishing with some dear friend like Tom Hughes, when he became a boy again. Here is the opening of one of his letters proposing such an excursion:

Of all men on earth I should like to have Tom Taylor for a third. Entreat him to make it possible, and come and be a salvage man with us; and tell him I can show him views of the big stone work [Snowdon] which no mortal cockney knows, because, though the whole earth is given to the children of men, none but we jolly fishers get the plums and raisins of it, by the rivers which run among the hills, and the lakes which sit a-top thereof. Tell him I'll show him such a view from Craig-y-Rhaidyr of Snowdon from the sole of his foot to the crown of his head, as tourist never saw, nor will see, 'case why, he can't find it. . . And oh, what won't we do, except break our necks?

Charles Kingsley was born on the twelfth of June,

Professor of English History in Queen's College, Oxford; Professor of English Literature in 1860; canon of Exeter Cathedral; visited America; died in 1875, he died at Exeter. In his last resting-place, a small church, with a square church-tower, is vine-climbed full of the ivy so fond of; corner by the

was thirty-five, before 1848, and closing subjects are many lectures, essays, novels, made for this paper: *The Water-babies, Madame How and Lady Why, At Last, These Rights, Westward Ho, Hereward, the Last of the English, The Good News of God. Memories of his Life*, with letters, edited by his wife, should be read in connection with them.

## THE PRICE OF A LITTLE PILGRIM.

(A. D. 1621.)

BY MARGARET J. PRESTON.

GO wind the signal-horn and bid  
My band of trusty men  
Forthwith appear in fighting gear,  
That I may choose me ten.

"They may not wait to kiss their wives,  
For there's a life at cost —

A tender one — the widow's son,  
Jack Billington is lost:

"The pretty lad that often drew  
My sword, and vowed, that yet  
He'd march away some summer day  
And capture Aspinet."



So spake the Plymouth Governor,  
And at the signal sound,  
Forth came the band at his command,  
And crowded eager round.

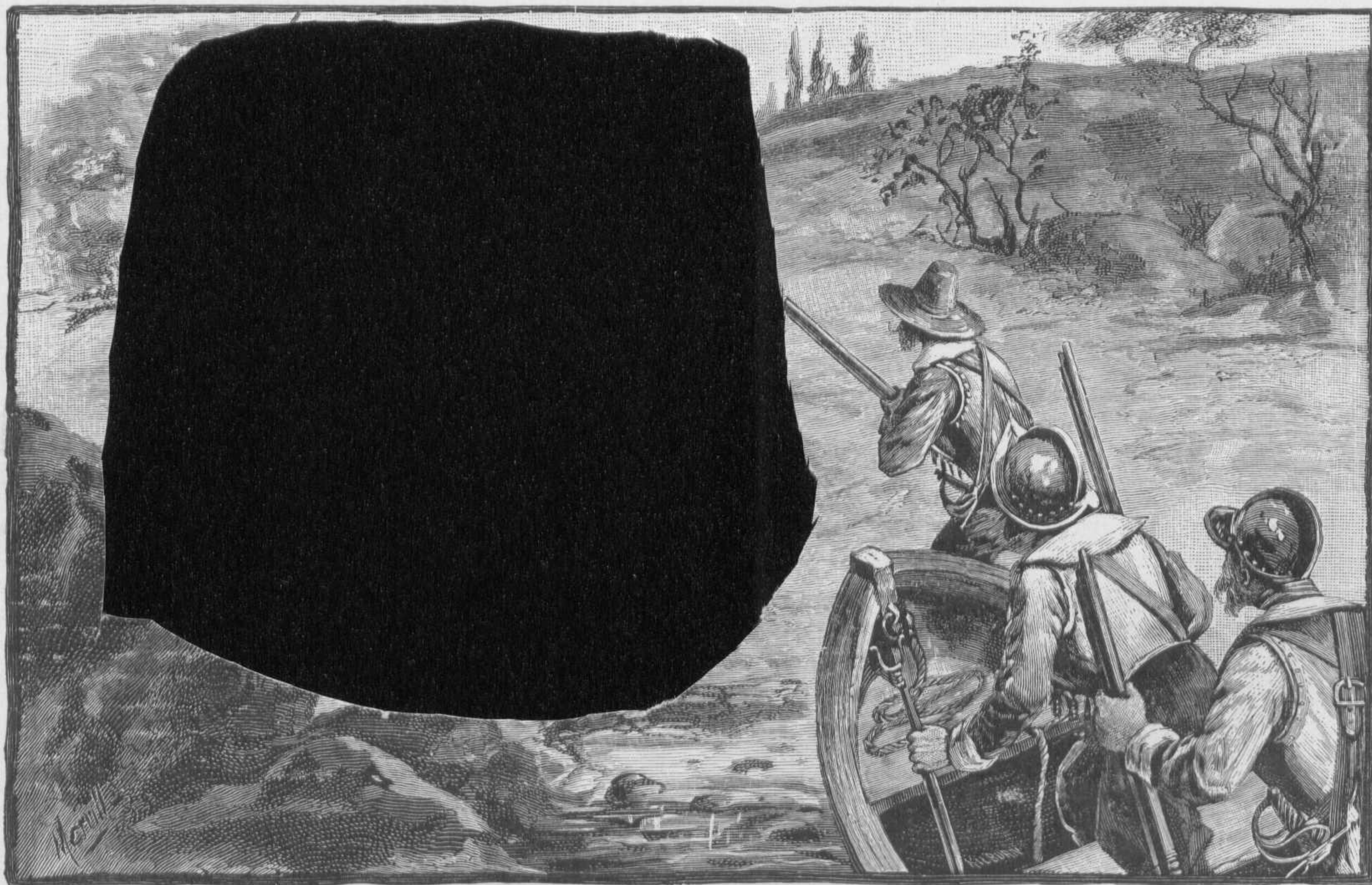
"Ten only," Governor Bradford said,  
"Will fill the boat enow";  
I want but ten strong-handed men,  
Now which of you will go?"

They shouted, "I!" and "I!" and "I!"  
"Nay, hold!" he bade; "I'll find  
Some Gideon-test to mark the best,  
The rest may stay behind.

At length they saw a curl of smoke  
Float o'er the distant trees,  
And all about the whoop and shout  
Came blown upon the breeze.

Scarce had they anchored, when the cry  
Of "*Yengese!*" rent the air,  
And even before they touched the shore,  
The foe was yelling there,

Each with his arrow drawn to head.  
"Stay! stay!" cried Squanto. "Let  
True braves be friends: our sachem sends  
To you his calumet.



HAVE YE FOUND THE BOY?

"Ye who are fathers — ye whose homes  
Are glad with children's joy —  
*Your* quest, I wot, will slacken not,  
Till ye have found the boy."

The shallop manned, they searched the coast,  
They beat the tangled wild;  
And sought to trace in many a place  
Some tidings of the child.

They steered through silent, sheltered coves,  
They thrid the marshes wide;  
And all around the shallows wound  
With Squanto for their guide.\*

"The mother in her wigwam weeps  
Bereft of peace and joy:  
Now we would know if it be so  
That ye have found her boy."

"*Ugh!*" growled the wily Aspinet;  
"What will the *Yengese* grant,  
If I set loose the white pappoose,  
And bring him from Nahant!"

"Name what ye will," the captain cried,  
"So much we prize his life."  
The sachem heard, and with brief word,  
Muttered, "A knife! a knife!"

\* One of the earliest friends of the Plymouth Colony.



"Good!" and the captain grimly smiled  
 Aside. "And yet, I trow  
 The dame will be scarce pleased that we  
 Should rate her boy so low!"

"Go, Squanto, hither fetch the lad;  
 And lest it will not do,  
 For *one* jack-knife to buy a life,  
 Why, Squanto, give him *two*!"

## THROUGH A MICROSCOPE.

BY MARY TREAT.

### VII.

THE microscope reveals so many strange odd-looking water creatures and plants that we can easily imagine ourselves transported to some new world. Look at this field of view as seen through the microscope. In the centre stands a brickmaker. He is a queer little animal, and so small that he looks like a mere speck to the naked eye, but through the microscope we see how wonderfully curious and strange a creature he is. He is no idle, lazy fellow. He is instead a most busy mechanic.

Just now he is building a house out of tiny bricks, and he manufactures the bricks himself, making them one at a time, and when one is finished he lays it down carefully by the side of the last, and fastens it firmly in its place with a kind of cement. The bricks are laid in regular tiers one above the other.

We find these brickmakers in still water where various water-plants grow, especially the water-milfoil and bladderwort. They seem to be social beings. They live in large communities, attaching their houses to the stems and leaves of the plants so thickly sometimes that they almost touch one another. They look, to the naked eye, like lines about one eighth of an inch in length. Sometimes they are very thick on the plants in New Jersey ponds.

If you take some of the plants and water, and put them in a bottle, you can carry a large number of the brickmakers home, where you can watch them at your leisure. Take a glass slide which has a little cup-shaped hollow to hold a few drops of water, and put a tiny piece of the plant with the house attached into this hollow and fill it with some of the water from the bottle. Now cover it with a very thin piece of glass and lay it over the stage of the microscope, and it is ready to be looked at and studied. You will look with both eyes, for your microscope is a binocular—one that has two tubes to look through. The size of the objects will depend upon the magnifying power you have chosen.

The first thing you see is a dark, brick-colored, cylinder-shaped house which looks to be about the size of a cigar. The little builder who lives in this

house has been disturbed by the means we have taken to make his acquaintance; he has stopped work and gone within. But he is so industrious a fellow that he will not remain within very long. As soon as it is quite still he will probably come to the door of his house, and you will see him thrust out two horns. He will move these horns to the right and left, cautiously feeling all around him. He seems very cautious indeed. But at last he is satisfied that no enemy is near. Now he ventures out. He unfolds his wheels.

These wheels are surrounded with a band of *cilia*, or flexible hairs, which he can put in rapid motion, making the wheels have the appearance of revolving very fast. This rapid motion of the *cilia* forms a swift current in the water; and this current brings tiny particles of various things to the little mechanic. Some of these particles he uses for food; of others, he makes brick. They are carried into an opening between the wheels where you can see them revolving very fast until they are gathered into a little round, dark-colored pellet. The particles are probably held together by a sticky secretion made by the builder.

It takes him about three minutes to make a brick. As soon as it is finished, he bends his head over, takes it from its mould between the wheels, and lays it down carefully by the side of the last. Then he raises his head and begins to make another. The tube thus constructed is quite firm and strong. Sometimes when I have found a long tube, I have cut off a portion from the top. This can be done, with care, for the brickmaker drops to the bottom when disturbed. It is very amusing to watch him repair damages and rebuild. Sometimes I have forced one out of his tube, but it always soon died. But though industrious, he is so cautious, or timid, that he is easily frightened, and therefore he is often interrupted in his work. For instance, like some people that we know, he is very afraid of snakes. If a harmless little tiny snake comes wriggling along through the water anywhere near him, he folds his wheels and drops down into his house as quick as a flash. One day a little boy was delighted with the fast-revolving wheels. Suddenly, by and by, he turned



toward me with great disgust plainly showing in his face: "He's gone in, 'fraid of a little snake!" he exclaimed.

He is always a great favorite with those who have watched him through the microscope. I do not know how long they live, but I have kept the same individ-

and this was given it because the threads that make the rosettes look like strings of small pearly-green beads.

All of the strange-looking plants and animals that we see in the microscope are known as well by sight and by name by those who make them a study, as are the larger animals and plants that we see around us every day.

A bright little girl once asked me why such long hard names are given to everything in nature. I told her if there was but one language spoken in the world there would be no need of using Latin names. But as there are many languages, it was found necessary to agree upon some system, so that all peoples of different nations might have the same name for an animal or plant, and a long time ago all the civilized world agreed to use Latin names. Thus our little brickmaker is known all over the world as *Melicerta ringens*.

"A field of view" depends for its interest and variety upon what kind of water we put under the microscope. In the one here represented, I first took a tiny spray of plant with a brickmaker's house attached, and laid it on the hollow glass slide and then used the dipping-tube and brought up some of the sediment from the bottom of the bottle; this proved to contain several singular-looking plants and animals shown here.

Figures 3, 4, 5 and 6, are diatoms, and figures 7 and 8 are desmids. Naturalists formerly placed both diatoms and desmids in the animal kingdom, but now all agree that the desmids are plants, while some few still maintain that the diatoms are animals. But the weight of evidence is on the plant side of the question.

The desmids are wonderfully beautiful plants; the markings and colors are exquisite. A number of species are found in the sediment of every swamp and pond.

The diatoms often grow in long ribbon-like masses (fig. 3), and then partially separate, remaining joined together at the angles so as to form a zigzag chain as seen at figure 4. They have the power of moving through the water, changing their places like animals.

A great variety of forms are found, both diatoms and desmids, many still undescribed, inviting the young microscopist to study and name them.

Figures 10 and 11 are different forms of a little animal, *Trichoda lynceus*. It undergoes a great many changes. In some of its stages, it looks so different from the figures here represented that you would never dream of its being the same creature.

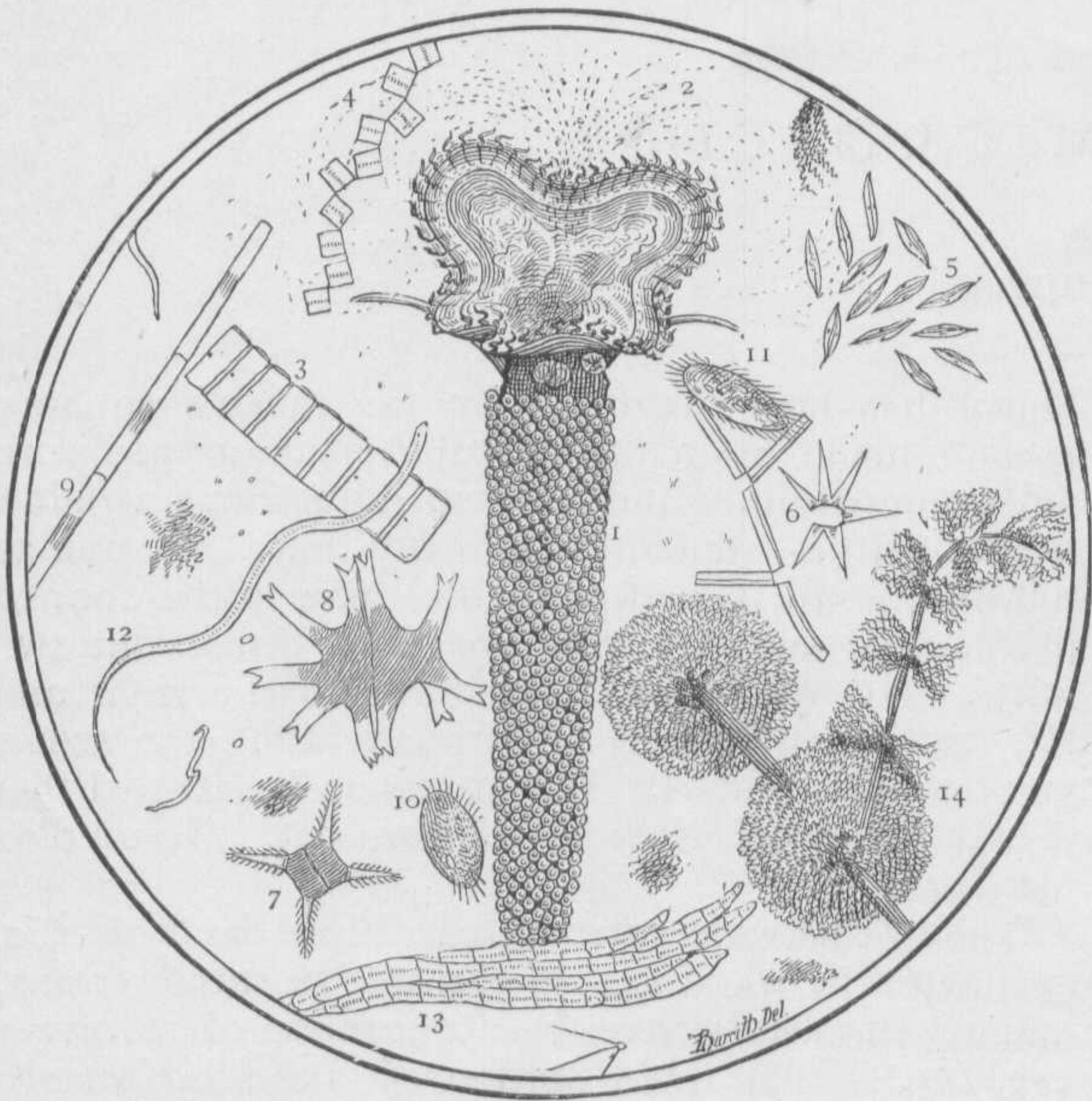


FIGURE 1, BRICKMAKER; 2, CURRENT IN WATER; 3, 4, 5, 6, DIATOMS; 7, 8, DESMIDS; 9, ALGÆ; 10, 11, TRICHODA LYNCEUS; 12, SNAKE-LIKE LARVA; 13, PART OF PLANT TO WHICH BRICKMAKER IS ATTACHED; 14, BATRACHOSPERMUM MONILIFORM.

uals three months or more. I think no one knows the entire life-history of any of these little creatures, so here is a grand chance for any young microscopist to investigate and become famous.

On the left of the brickmaker in our field of view is a delicate, beautiful plant. Only a small part of it is seen in the engraving. It has a long, floating stem, thickly set with rosettes of a pearly green color. To the naked eye it looks like green slime, and is called "frog's spawn;" but the microscope shows us that it is a lovely plant, and some wise man has given us a long fine name to call it by if we choose — *Batrachospermum moniliform*. Let us see if this long name has any meaning: *Batrachia*, a frog, *spermum*, spawn; ah, after all, only another name for frog spawn! The other name, *moniliform*, means a bead-like necklace;



## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

## VII.

## DE BERENGER AND COCHRANE: SWINDLING.

IN the days when the struggle between the great Napoleon and the sovereigns who had allied to conquer him was drawing towards a close, all England was intensely anxious for the earliest news from the seat of war. This anxiety was highest among business men in London, for the English government had borrowed immense sums to be used in prosecuting the war and would be made very poor by a defeat of the allied armies.

The "stocks," or "funds," as the large investments of money in England were called, would rise in price very much if the allied armies should be victorious, or fall greatly if Napoleon should conquer. But there were no telegraphs then, and the newspapers were small and feeble compared with those of our time; accordingly the Londoners, eager as they were for intelligence, were dependent on such reports as might be brought by persons returning from the scene of the conflict.

Early one morning a stranger dressed in a peculiar military uniform arrived at a hotel in Dover (which is on the coast of the English Channel, opposite France), aroused the landlord and servants to give him some refreshments, and told them that he had just come from France, and that Napoleon had been defeated and killed in battle. From Dover he wrote letters announcing this news. He then travelled to London, spreading the intelligence; and soon after his arrival a postchaise drove through London streets carrying men dressed as French officers, wearing blue coats with white linings and white cockades, who, as they rode, threw from the windows of the chaise little pieces of paper telling the same story. At first people readily believed it; the "funds" rose rapidly in price, and speculators who bought early realized large profits. But very soon the story was found to be false. It was what is called a "hoax," ingeniously contrived to enable those speculators to make money. Napoleon was not dead, nor even defeated; and the pretended French stranger was a mere swindler.

The people who had lost money by the swindle naturally made an investigation. They ascertained that the stranger who brought the false news was named De Berenger; that when he arrived in London, he visited a Sir Thomas Cochrane, at the residence of the latter, and came away wearing a black coat and hat, instead of his French military attire;

and that Sir Thomas and an uncle of his were among the persons who had made money by the hoax. These circumstances gave rise to a belief that Sir Thomas and his uncle had devised the plan, and had hired De Berenger to assist them, by starting from Dover as if he had just landed from France, and bringing the false news; and that De Berenger's visit to Sir Thomas was to enable the two to consult. Sir Thomas, his uncle, and De Berenger, with some other persons, were brought to trial for swindling, and were convicted. Sir Thomas was imprisoned for a year, fined a thousand pounds, expelled from the House of Commons, and otherwise disgraced. Thus we see that persons who can be clearly proved guilty of cheating or swindling are liable to severe punishment.

In this instance the proof, although it seemed clear at the time, was probably erroneous as to Lord Cochrane. He always denied having had anything to do with the swindle. When he was asked about the mysterious visit, he said that De Berenger came to him saying nothing about Napoleon, but complaining of being very poor and begging for aid in gaining some appointment or employment. When asked about De Berenger's change of dress at his house, he said that De Berenger borrowed the hat and coat from him in order to make a better appearance when calling on other people in search of business. When asked about the profit he made by the hoax, he showed that the business was managed by his broker, without his saying, doing, or knowing anything about it; moreover, that the profit realized was very little, and that he easily might have made five or ten times as much if he had been in the secret.

Gradually people became convinced that his story was true and that he had been unjustly condemned. He became very popular for this reason, though he was not a man of amiable or popular manners. His constituents re-elected him to Parliament. The common people made a great subscription of a penny for each person, to repay his one thousand pounds fine, and at last government formally restored him to the honors of which he had been deprived under the unjust verdict.

He became, in England, a rear-admiral, and also Earl Dundonald; and in South America, where he served several years after his troubles arising from the great hoax were over, he was appointed to high naval command, and was created Marquis of Maranhao.

I have read that a few years before his trial he fell



in love with a beautiful young lady who was endeavoring to get an education, but was poor. He supplied money for her expenses at boarding-school, and afterwards was married to her; and although they were a contrast — “she young, sprightly, handsome, gay; he old, homely, stiff, serious” — they lived very affectionately and happily together for about forty years. He lived to be about eighty-five years old, and when he died, which was in 1860, he was honored by a burial in Westminster Abbey.

The members of the Reading Union will find some information about swindling useful to protect them from being cheated. There are, unhappily, many persons scattered through the country who are busy in contriving and practising swindles; and a young person who has been educated to be honest and industrious is perhaps more liable on that very account to be deceived; for he does not imagine that people can be so dishonest as sometimes they are. For example, every one understands that merchants are accustomed to advertise the goods they sell in the newspapers; and that a person living in a distant place can order what he wishes to buy by means of a letter, and have it sent to him by the express; and that the expressman will receive the price and carry it back to the merchant. A vast amount of honest buying and selling is done in this way. Swindlers take advantage of the system in various ways. Sometimes they advertise watches or jewelry extraordinarily cheap, telling some plausible reason why the price is so low. One man advertised to sell a watch as good as ordinary two-hundred-dollar watches for four dollars! saying that he had the benefit of a new way of making gold, just discovered. Sometimes they advertise a “gift enterprise,” or a “distribution” of piano-fortes, sewing-machines and other valuable articles among all who will purchase tickets.

Their plan is to send to you by express a parcel which looks as if it might contain whatever you wrote for, directing the expressman to collect the price. When the expressman brings you the parcel, you will naturally give him the money; indeed he will not deliver it without; and he will be gone before you will have time to examine your bargain. And you will find — if you are dealing with a swindler, not with an honest merchant — that the article inside is not worth half what you have paid, perhaps is not worth anything.

In one swindling trial the story was that a boy who bought a ticket in a gift enterprise received a notice that he had drawn a prize worth five hundred dollars, on which he was to pay twenty-five dollars. He borrowed the money and paid it to the expressman; but when he opened the parcel, behold! there was nothing within but old newspapers and sticks of wood. To get one's money back in such a case is usually impossible. The express sends it at once to the person from whom the parcel came; and he takes good care that the persons whom he has cheated

shall not be able to find him. If, for instance, you send or go to the street number of his store, as given in his advertisement, you will learn that no such person has any store there; the swindler has some cunning arrangement for getting letters without being known.

Young men who visit the large cities in search of a business are often swindled by advertisements of a “Clerk wanted,” or a “Business for sale.” The swindler has a room fitted up with what appears to be a stock of goods, and gives a glowing account of his business and prospects. He wishes a cashier or a partner, but expects that the person whom he hires will deposit a few hundred dollars as security that he will do his work faithfully, or as part of the capital. Or he wishes to sell out on account of poor health, or because he has another store, and cannot manage both. But, if you give him the money, he will disappear and you will find the drawers, boxes and barrels have nothing in them of any value.

During the past ten years many persons have been swindled by make-believe brokers who have advertised to take small sums of money and make great profits on them by speculations in Wall street. Their circulars described the best methods of speculating, and offered to take small sums from anybody, lump them in one large fund, speculate with it, and divide profits with those who contributed. They even promised to guarantee that there should not be any losses!

But if you send money in answer to such offers, no profit will come. When you write asking questions no answer at all will be returned, or you will receive a letter explaining that by reason of very extraordinary circumstances there was a loss in the particular speculation; but you had better try again, as it is impossible there should be a loss the second time. Usually the make-believe broker sends this sort of answer to his dissatisfied customers as long as he can persuade them to wait, but when they complain to the police, and the officers search for him, he changes his name and removes to another city.

To speculate in Wall street in any way is dangerous; to send money to brokers who advertise to guarantee that it will not be lost, is simply throwing it away. What are called “confidence men” have very ingenious ways of cultivating acquaintance with strangers, winning their confidence, and imposing upon them by some plausible story.

There is an account of a wealthy American who was invited by a very pleasant, gentlemanly man whom he met to take dinner at a restaurant. The gentlemanly stranger affected not to understand French very well, and became involved in a discussion with the waiter about the bill; whereupon another gentlemanly man, overhearing the trouble, drew near, volunteered to assist, and by his better knowledge of the language, settled the difficulty pleasantly. This led to a conversation in which the new-comer said



that he had inherited from a relative who was very fond of the Americans, a large estate, on the condition that he should send twenty thousand dollars to be distributed among the poor in this country. Swindler No. 1 suggested that the gentleman whom he had brought to dine with him was an American and would perhaps take charge of the money. Swindler No. 2 said he should be happy to make that arrangement if the American gentleman could exhibit a corresponding sum to show that he was respectable and trustworthy.

And the American was actually induced by this story to come the next day, bringing several thousand dollars in bank notes to prove that he deserved to be entrusted with the twenty thousand dollars. The swindlers easily contrived to get it into their hands and ran away with it. In large cities, and in travel-

ling, it is very difficult to know how to avoid persons who are trying to make acquaintance for the purpose of cheating, while you are courteous and kindly towards honest and respectable strangers. Perhaps the best protection against such swindles as I have described is to be really honest and industrious; to be ambitious of earning your money by genuine work, and willing to pay a fair price for whatever you buy.

If the American traveller in Paris had not desired to get twenty thousand dollars for nothing; if the customers of the advertising brokers had not wished to get profits of speculation without running any corresponding risk; if the boy who subscribed to the gift enterprise had not hoped to get five hundred dollars' worth for only twenty-five dollars, the devices of the swindlers would not have attracted them, and they would have saved their money.

## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

### VII.

#### HINGES AND LOCK.

TO make the tool cabinet complete there must be hinges and a lock. These you can get at a hardware store. Ask for hinges for three quarters inch wood, and about three inches long; you will need three hinges, and the screws to fit the holes. Brass hinges are best, and look neater and more tasteful than iron, though iron will do. If the screws don't come with the hinges, then look out some that will fit, from your stock on hand.

The first thing for you to settle is which way you wish the cabinet to open; i. e. to the right as in the diagram, or to the left as might be if the only place for your cabinet happened to be a corner which would not admit of opening to the right. Suppose the door is to open to the right. Find the middle of the front edge of the right hand side of *cabinet*. Mark across the edge, then measure one and one half inches *each way* from that line and mark. This is the place for the middle hinge. Five inches from the lower corner on the same side, and five inches from the upper corner measure and mark; then measure three inches further from these last lines and mark; these are for upper and lower hinges. In these three spaces, so marked, cut out rectangles as deep as the thickness of one wing of the hinge.

Repeat these measurements, markings and cuttings on the *left* hand side of cover or door. Be careful in

measuring so that the two halves of the cabinet will come together and exactly match.

Now to put on the hinges: Take one hinge, shut it together *tight*, so as to be sure you are folding it the right way; then open till the wings are at right angles. Lay *left* wing into space cut for it in *right* side of cabinet. Take care to have the wing fit neatly, letting the round edge of hinge project. Screw firmly into place. Put all the hinges in place on the cabinet before beginning on the cover.

Now lay the cabinet down flat on your workbench, or on the floor. Put the cover down beside it, with a bit of board or blocks underneath thick enough to bring the hinge places of the door on a level with those of the cabinet. Then fasten the *right* hand wings of hinges into the places prepared on the *left* side of door. Be careful, as before, to have the round part of hinge project so that it will work freely and have the *wings flush* with inside of cabinet and door.

When open, there will be a narrow space between the door and cabinet, but when closed they will fit tight.

Now for a fastening: If you simply wish to keep the cabinet closed when not in use, you can put a hook on the door, the eye on the cabinet. If however you wish to lock up your tools for safe keeping, you must invest in a good lock and key. The best sort for your purpose is what is called a chest-lock. (*Fig. 1.*) They

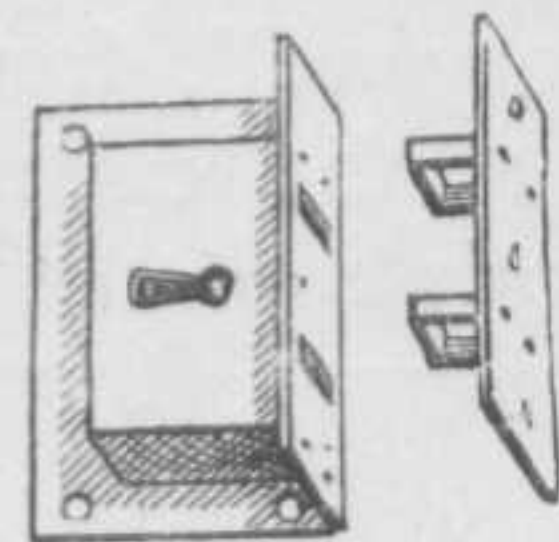


FIG. 1.



come in various sizes, so I can't give exact measurements. It must of course go in the middle of the side opposite the hinges.

As you look at the lock you will see that one face is smooth, and the other side, where you find the keyhole, is irregular. This irregular part is the one that sets into the wood. From the inside of cabinet (opposite the middle hinge) cut a place to correspond in size with the lock so that it will fit neatly. The opening for the key must of course be cut through on to the outside of cabinet. Be careful to do this neatly and cut out no more than is needful for the key to pass in freely.

By and by, on a bit of nicer work, I will tell you how to put on a scutcheon to guard the keyhole, but it isn't necessary for this. The other part of the lock which has the tongue, or tongues, is fitted into the door of the cabinet in the same way; the tongues of course projecting from the edge of the side. Be careful to have them come exactly opposite the openings for them in the cabinet side. *You cannot be too exact in carpentry.* The next thing is to fasten the cabinet securely against the wall. Of course you can stand it on the end of your bench, but it is better on the wall.

You will need four strips of brass four inches long, one inch wide, and about one eighth thick, with four holes for screws bored in each piece. Two of these go on the top corners, and two on the lower corners of cabinet. Put them on so that the screws will go through into the inch-thick side of cabinet, not merely into the thinner back. Half the length of brass piece with two holes must project above on the upper corners, and below on lower corners. (Fig. 2.)

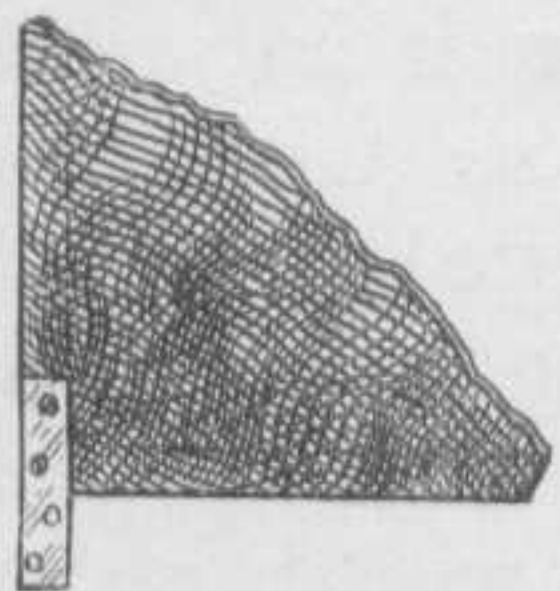


FIG. 2.

You will want some one to hold the cabinet steady for you while you secure it with long heavy screws, two at each corner. Of course your tools are not in the cabinet while you are at work upon it.

One word of caution: If the cabinet is to go in a corner, leave a few inches (i. e. the thickness of the door) measured outside between the wall and hinges, or you'll find you can't open the door.

If you have carefully followed all the directions, you have now a good, plain, serviceable tool cabinet.

If you would like to stain it, which would improve the looks, I will try to tell you how. You must not get discouraged if the first attempt doesn't turn out very well, for one must practise even to stain well; but the cabinet is a good thing to start with. Of course the staining is easier done before the cabinet is hung; but a neat workman can do it on the wall.

First determine the color you wish your stain to be. I should say black walnut, as it is the easiest to put on, and you will not be likely to tire of it. The quantities I give will of course do more, a great deal, than the cabinet; but if stoppered tight they will keep for future use, and for very small quantities you have to pay exorbitant prices.

I haven't much faith in home-made stains; they cost about as much, and are not very satisfactory. At any oil or paint shop, get a quart of stain, which will cost forty or fifty cents; one fourth pound *clear* glue for sizing—this ought not to be more than eight or nine cents; one quart nice varnish (what is called *inside* coach varnish is the best), this will cost about seventy-five cents; at same time get a small piece of putty, same color as the stain; the man at the paint shop where you get your stain, will color the putty for you. With this colored putty fill up all holes made by nail heads or screws.

If you are on good terms with a painter, he will likely enough lend you a couple of brushes. If you have to buy them, get one large and one small, costing from fifty to seventy-five cents.

See that the surface of the cabinet is free from dust; to make sure, wipe inside and out with soft cloth. Stir the stain up thoroughly from the bottom of the can with a small stick; repeat this frequently, otherwise your stain will not be even colored.

With the large brush put on one coat of stain, remembering always to draw the brush in *one direction* and *with the grain* of the wood.

Put on as evenly as possible; always pat and press the brush on the side of the can so it will not drip, otherwise your stain will be streaky. Let this dry thoroughly for half a day where no dust is flying. Prepare the size by melting glue in warm water, add boiling water till thin and smooth, then add a spoonful of lime water.

Clean the stain brush in warm water and use it for the size; one coat put on evenly so as to cover every part stained; clean your brush again in warm water. Next day put on the varnish; this requires especial care. It must be a *thin, even* coat if you wish to have a creditable job. It is worth taking pains. It ought to have a day or two to dry in a place where no dust is flying.

If you are in a hurry, you can use shellac, which dries almost instantly; but for this very reason, is much harder to put on well. I always prefer the coach varnish.

The small brush is handy for the shelves and corners.

Make a neat job, and don't let the size or the varnish get into lumps in the corners.



## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

## VII.

## A COMFORTABLE KITCHEN.

**W**HY do people always build kitchens at the back of the house?

I always said when my house was built it should have two fronts, one before and one behind, but no back door where pails, barrels and rubbish should gather, no muddy stoop or trampled ground about the steps. Instead, it should be like one sweet cottage I knew, whose paths led by croquet lawn and tennis ground at the side, to a surprise of trim grass-plots and flower beds behind the house, where a peach-tree was trained to shade the pantry window, from which one could pluck its leaves for flavoring custards and creams, and a Boursault rose climbed over the back door to the kitchen roof, when it laid its tresses of crimson cup-roses in the sun. A broad greensward, no less lovely that it was convenient for bleaching, and a low spreading orchard lay behind the flower plots, all secluded, fair and sweet as a walled English garden.

Why should women and girls banish themselves to dull rear regions where all manner of rubbish is at home? The other day I drove by a large farm with a big brick house, whose owner, a rich Dutchman, built the largest front room for the kitchen, because, he said, his wife spent most of her time there, and she should have the very best room in the house. Everybody said he was shrewd and right about it, though nobody thought of following his example.

You want to make the kitchen pleasant, Anna Maria, so that you won't grow tired of staying in it day after day. Do not go to an extreme like some weak-minded, fanciful women who want pictures and book shelves in the kitchen, forgetful that steam and flies will do their best to spoil frames, glass and bindings; who want bits of carpet about, to catch one's feet and be always lying awry, and a lounge and work basket, to become scented with cooking. The clean, orderly kitchen is always attractive by its neatness, and all you need to add is a splint rocking-chair and boxes of sweet herbs and flowers at the windows. It wants a wide east window for the morning sun, and a south one for cheerfulness.

Were I building a house the kitchen should not be wholly at the back, but project at the side so as to have one window for the pleasant front yard and the road. It should be lighted on three sides with a south porch shaded by awning in summer, to be taken

down and give the full sun in winter. Its walls should be painted cream gray, pinky drab, or brownish buff, colors cheerful but not readily defaced, from which fly-specks and soil could be washed as from stone-china. Papered walls are objectionable in a kitchen, for the steam loosens the paper and it absorbs smells and cannot be cleaned when soiled. Whitewash rubs off, and it costs more in three years to have whitewashing done than to paint the walls in the first place. The floor should be even and solidly laid of hard pine, oak or maple, the first finished in good yellow paint, or in the dark shellac polish like black walnut, and which cleans easily. Oak, maple or any of the hard woods need a light shellac finish which shows the grain and color of the wood. Do not have the floor oiled, however wiseacres may advise it. Oiled wood holds dust and lint, and always looks dark and damp. Oilcloth looks well, but has no advantage over a well-laid floor.

Do not have a high ceiling which gives you more space to heat in cold weather and more work in keeping walls clean the year round. Have windows to let down at the top and a ventilator in the chimney to draw off all the cooking odors. Learn to keep your kitchen and entries free from villainous smells of suds, of cooking cabbage, fish and beans, which give housework most of its vulgar associations. It takes the soul out of the sweetest country walk by new-mown fields or blossoming orchards, to pass a house where the smell of frying doughnuts or corned beef informs the neighbors what the family are to have for dinner. There should be an airy little passage between kitchen and living rooms to keep odors of cookery from wandering about the house, and as you do your own work, you can afford serviceable improvements.

The best housekeepers require but a small supply of utensils, and you will find the fewer things you have to take care of the better. In fact, half the housekeeping aids advertised are more trouble than help. Among the things you need to save time and strength are these: A strong white wood table for baking and ironing with top at least 3x6 feet, and drawer, but no leaf, for it can be framed more firmly without one. Instead have a light, small table to move about easily where you want it, to hold the pans for shelling peas and paring apples, or to lay the starched things on ironing days. Also, have a broad drop-shelf with strong hinged brackets to fold back underneath, so that it can hang against the wall when not in use. A wire cupboard should hang over



the cooking table with spice, soda and small things used in cookery. Do not have the cupboard for iron ware under the sink where more than a suspicion of dampness, close odors, grime and black beetles is apt to gather, and where your back must ache stooping for what you want. Have the sink, whether of iron or wood, neatly painted on the underside, and supported by stout metal brackets without any casing, leaving the floor underneath open and dry, as well as making the sink easier to work at. Have a nice painted woodbox beside the stove with a hinged half-cover, and a cupboard above for iron ware. This brings cooking utensils in easy reach of where you want them without stooping. The upper shelf in this is the place for flat-irons, where they will be out of dust and rust. They are always in the way on the mantel, and grow rusty in closets away from the fire.

It will save half your strength to keep things used together close to each other, in convenient range; the poker, stovelifter and hearthbroom close to the stove on nails just the height of your hand, to save stooping for them, the cooking-table next the pantry door, that you need not cross the room for everything wanted in baking, and the tubs, washbench, rubbing-board, clothespins and clothes-stick all in one large closet. It is a relief to find the broom and dustpan always together, and the duster at hand. The china closet should be between dining-room and kitchen, with a large slide window opening on a broad shelf next the sink, in the corner adjoining, if you want the greatest convenience in washing dishes and putting them away. One little point which adds to ease and safety in going about in a hurry, is to have the corners of tables and shelves rounded, that you need not run against them.

All the woodwork of doors, windows and baseboards ought to have the plainest mouldings, for scrolls and beadings catch the dust and are hard to clean. Be sure to have brackets at different heights each side the window for shelves which may be shifted as your plants need. Shallow boxes of curled parsley and sweet herbs should be growing in the warm, moist air of the kitchen, which often suits plants better than any other part of the house. Have the clock on a shelf with your account sheet and some good receipt books in easy reach, and a light tool box in the closet, with clawhammer, screwdriver, wrench, gimlet, a ball of string and assorted nails, tools you can buy for ten cents apiece, which will be no end of help on occasions.

You want a closet for tubs, brooms, pails and such large things, a closet three feet deep at least, with door or doors to open the entire front, so that things can be taken out, and it can be swept or cleaned easily. Nothing like dark closets and corners behind doors for collecting mold and dust. If you are bent on doing work well and easily, you will have these improvements made as you are able. Your father will soon see that it pays to supply a neat, economical

housekeeper with conveniences, and it costs no more to frame a closet with cheap doors than with lath and plaster. One thing more, and that is a firkin, or large pail with tight wooden cover for garbage. Now remember, no decent kitchen ever has a sour, ill-smelling receptacle for slops, and leavings of any kind — no decent house has ugly, ill-smelling things anywhere on the premises.

How are you going to help it, do you ask?

Unless your scraps are to be saved for a cow or pig, burn all leavings and parings, the refuse from tables, and the scrapings as fast as made. Open all the back drafts of the stove, put the leavings on the hot coals and let them dry and burn, which they will do in a few minutes. With the drafts open there will be neither smell nor smoke. If the scraps must be saved, have a waste pail with a tight cover, or a covered firkin large enough to empty a panful of parings into in a hurry without dropping any on the floor. Never pour slops with the waste for it sours and ferments sooner. Have the pail emptied twice a day in warm weather and scrubbed with water and a few turns of an old broom, which cleans it without touching your hands to it. But if rinsed, drained and dried in the sun even your waste pail will be as neat, wholesome and well kept as any of your belongings. Every washday all slop pails and barrels should be scrubbed with hot suds and a broom outside and in, scalded and aired, when I think you will not have to shrink from them as disagreeable subjects. Kitchen furnishing shops supply large tight garbage firkins neatly painted with covers, which never need be obnoxious to sight or smell. A sour waste barrel in a corner always foul with droppings is not to be tolerated, for it is enough to cause fever in warm weather. You must not consider it beneath you to look after such details of house and yard, to see that everything in sight or out of sight is wholesome, clean and safe as it is possible to be. You have been taught to despise the slovenliness which wears a good dress and bright ribbons with unwashed skin and careless underclothing; learn also to despise and dread the housekeeping which is satisfied with pretty parlor and chambers, while the closets are unswept and musty, and the back sheds and cellar full of half-decayed rubbish. Dread it because such neglect causes ill health. Do not rest till your working part of the house is as pleasant as the well-furnished part.

Of all rooms in a house, I delight in a well-kept kitchen, for no other room is so given up to good works and consummate cleanliness, so washed and scoured and polished, till it smells of the sanctity of neatness. When the western sun shone broad and merry over the sparkling window, yellow floor and white tables, when a savor of sweet marjoram and lavender from the window-boxes was in the air, and the shining stove with its bright teakettle and simmering pans was a shrine of good cheer, I have taken portfolio and books out in my kitchen to the light-



stand and little shaker chair to enjoy the sparkling humor, the warm home radiance, the neatness and seemliness which made the place akin to poetry and clear thoughts. It was not too homely to read Tennyson's songs or *Blackwood's Magazine* in, with the fresh plants in the window, the pears baking to rich syrup in the oven, and the black cat with golden eyes, purring in her satin fur in the best of the sunlight. Didn't I learn "*Mariana in the Moated Grange*," and "*Where Claribel low lieth*," and Bayard Taylor's Arab songs from the book propped open on the ironing table, catching a stanza between the ruffles of a white skirt or the turn of a sleeve? Nor was it less tidy of a morning, when one was rushing round to get early breakfast, for sister Maggie knew how to keep order in the stir; the stove was brushed clean, the floor

swept, the kettles nice about their jackets, the dishes ranged in order on the table, not dropped out of chaos, and everything was clean in spite of use. It was pleasant baking days, preserving days and Saturdays, nor absolutely tedious washing days, for Maggie had the knack of keeping things at their best. As she crossed a disorderly room the chairs went into place, the baskets into their closet, half a dozen unnecessary pots and pans retired to the storeroom, and the contents of sink and tables fell into array, the blind was pulled straight and the rug set smooth. Slack women looked on in admiration and talked of "her gift" for housekeeping, just as if every mortal with head and two hands could not train them to see at a glance what needs to be done, and to do it as quickly.

## HEALTH AND STRENGTH PAPERS.

BY PROF. D. A. SARGENT.

### VII.

#### WALKING AND RUNNING.

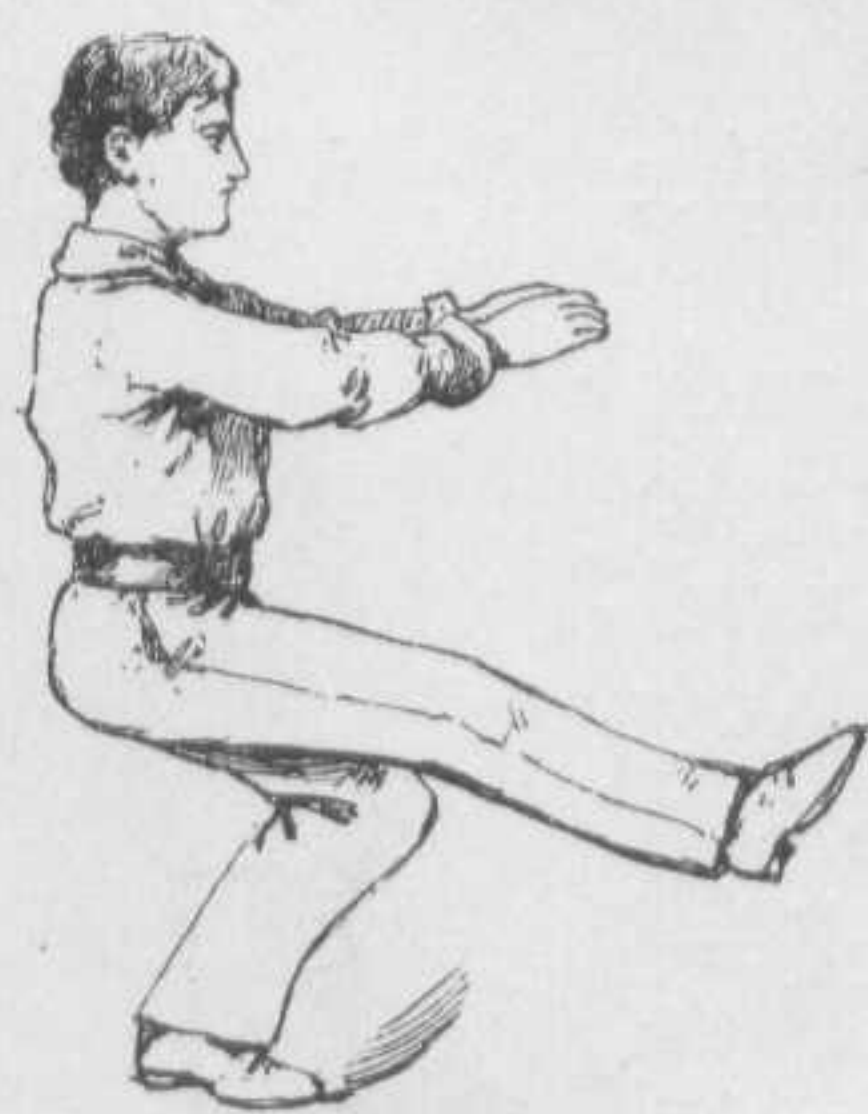


FIG. 1.

OF all the exercises that are open to boys, walking and running are the most accessible. Whether you live in the city or country, on the plains, in the valley or on the mountain slope, as long as you can get space to operate in, and fresh air to breathe, these delightful exercises are yours to enjoy, and yours to get vigor from.

And yet how very few really know how to walk or run to the best advantage. This fact is largely due to difference in character and circumstances.

We should hardly expect the lazy, indolent, shiftless boy to work with the vigor and determination of the boy who has an aim and a purpose in life, and it would be unreasonable to compare the shambling walk of a country lad whose path lies over rocks, stubble and uneven roads with the easy walk of the well-bred city boy who has been trained to gracefulness on the floor of the dance hall and gymnasium.

In walking for pleasure as for grace, it is necessary to expend as little muscular energy as possible.

In walking for exercise it is necessary to expend as much muscular energy as you can command. Our theme is walking and running for strength, yet by a

well-known physiological law the power we expend in exercise, up to a certain limit, is power gained, and as gracefulness as well as ability to do and enjoy depends greatly upon strength and reserve power well controlled, the best way to be graceful is to be strong.

How shall we gain strength then by walking and running?

It seems hardly necessary to say that a walk taken by one wearing a heavy overcoat, a pair of tight boots or shoes, a stand-up collar, kid gloves, and carrying a little dandy cane, will not be the best kind of walk for exercise. No, the movement of the body and limbs must not be hampered by superfluous clothing, nor the circulation in the hands and feet impeded by close-fitting gloves and gaiters.

Go to your room and dress for your walk as you did for your home gymnastics. Put on a loose flannel shirt, and a pair of easy shoes; lay aside your suspenders and fasten your trousers with a canvas belt.

If you wear long socks, support them by safety pins from the sides of the drawers, not by garters around the legs.

Put on a short jacket or a free-and-easy fitting coat, so that the motions of the chest will not be interfered with.

Now you are ready for a walk, or for a run.

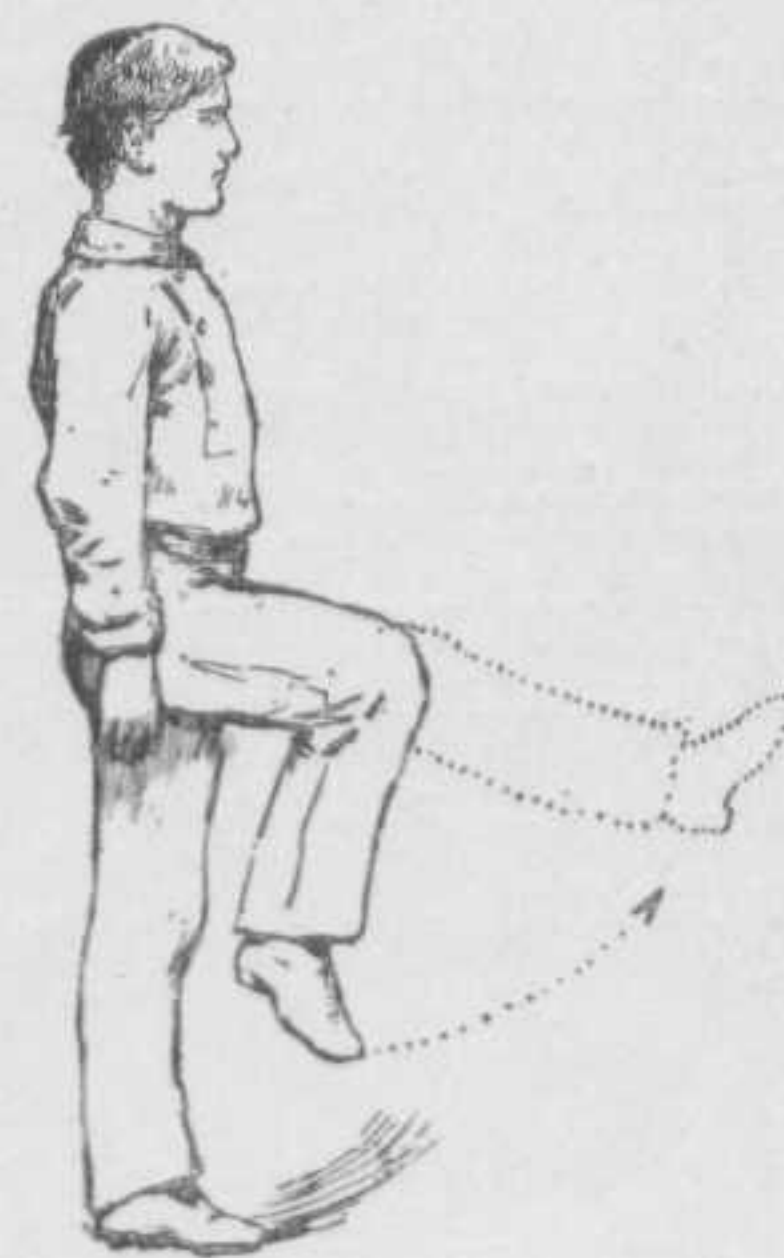


FIG. 2.



This time it is a two-mile walk. In starting, it is always well to begin moderately. Get thoroughly warmed up before you put on speed. In the meantime the heart and lungs will have adjusted themselves for increased activity, and all parts of the body will have been prepared for extra demands upon them. Begin to quicken the pace at the end of a quarter of a mile, and as you do so throw the chest forward, head back, and bring the arms up from the hips to the sides of the body.

Do not lean forward, but make the legs keep up their pace by swinging the arms alternately to the front and rear, thus giving a forward impetus to the body. As you increase your speed turn more to the right and left in stepping to the front, thus gaining in length of stride and easing the muscles of the calf. Remember that all walking must be strictly heel and toe. One foot must always be on the ground, and



FIG. 3.

since it is difficult to hold to this rule, and get your spring from the toes, it is well to practise throwing the foot well forward by aid of the extensors muscles of the thigh, as you would if you were kicking at an object in front of you.

This is actually the appearance presented by the extended leg of a pedestrian, while walking as shown by instantaneous photography.

Keep up this gait as represented for fifteen or twenty minutes, and if you are any kind of a walker, you will have covered two miles. If at the end of this time you are not tired, you can run for a quarter of a mile.

In attempting to run, no doubt you will feel a sense of relief in some of the muscles of the legs, as a rapid walk is much more tiresome than a moderate run. The moment you strike into a run the action changes. One foot is no longer obliged to remain on the ground until the other touches it, but both feet may be and are actually off the ground at the same time.

The body leans further forward, the head further back, and the arms are swung back and forth through greater spaces, and with greater rapidity.

If you have run a quarter of a mile in addition to the two-miles walk, you will probably be in a profuse perspiration.

If so return to your room, take off your clothes, rub yourself all over with a rough towel, and if you have the facilities, take a tepid sponge bath, otherwise continue to rub until you are perfectly dry. Then

look at the clock and you will see that you have done all this in one half hour.

But during that time you have taken into your lungs and blood five times as much air as you would had you remained idly at home. Your heart has been stimulated to contract with greater energy, and better blood has been sent coursing through your entire body, moreover the liver, skin and other organs have been aroused from their torpidness, and are doing their best to rid the body of its worn-out and poisonous substances.

After such relief who does not feel better? But perhaps some of you may desire to make a practice of walking and running as a means of exercise and development. To such the following hints may be acceptable.

If you find that running tires the front part of your thighs and knees, sink and rise on first one leg and then the other. (*See fig. 1.*) And alternately extend the legs. (*See fig. 2.*) If it tires the back-part of your thighs and loins, practice running up-hill, or lifting weights from the floor with legs straight. (*See fig. 3.*)

If it tires your ankles, and legs throughout, and your time for exercise is limited, take a short run over a rough pavement, through loose sand, newly ploughed ground or an uneven field. Running in the snow answers the purpose admirably.

If you would acquire a light and graceful carriage always walk on the toes.

As a preliminary exercise practice the following movements fifteen minutes daily:

Stand on the right leg with hands at the sides, lift the left leg slowly to the front, keeping the knee stiff until it is well extended. (*See fig. 4.*) Now rise on the toes of the right foot, and gradually swing back the left leg until it is behind the right. (*See fig. 5.*) Then rise on the right foot again. Do the three times forward and back while standing on the right leg; then stand on the left, and extend the right leg, rising on the left foot, etc.

Repeat each movement three times alternating with each leg until tired, then rest a few moments and try it again taking care to keep the body erect and not to lose your balance at any part of the step.



FIG. 4.

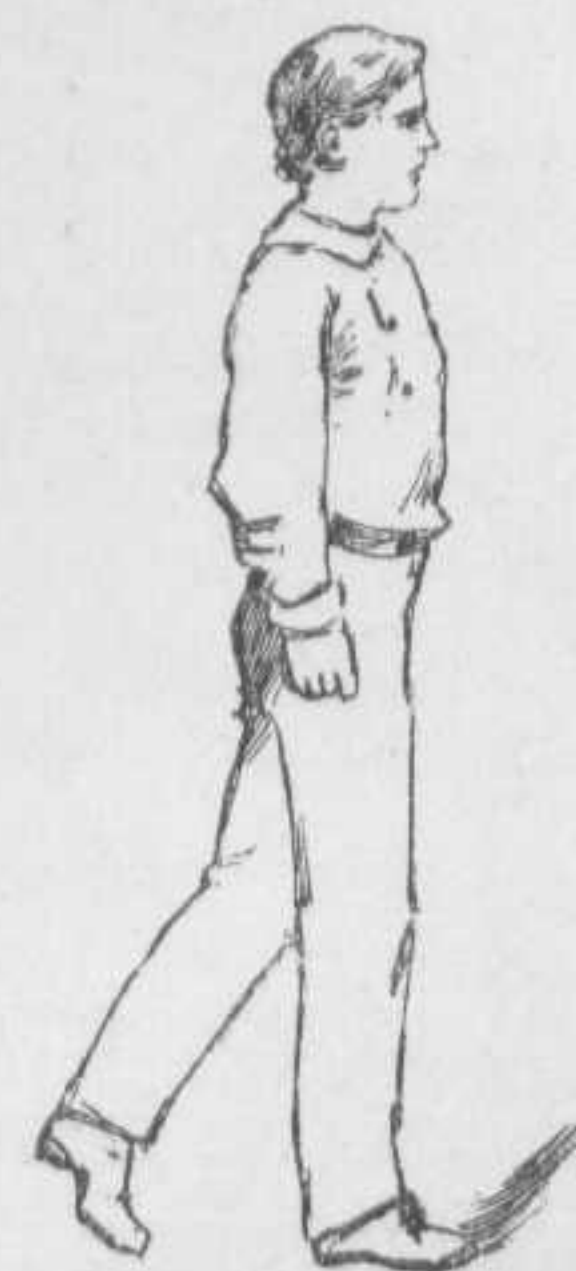


FIG. 5.



## WHAT TO DO ABOUT IT.

C. C. D. "Will the WISE BLACKBIRD please tell me how I can keep my two boys from groaning when they do dishes, when I have not time to read to them in WIDE AWAKE? Have tried riddles and guessing initials which sometimes helps to lighten the burden, but 'tis such a trial to a boy who wants to be building engines and steamboats, to have to waste his time doing dishes." Does C. C. D. propose to follow her boys through their life with her reading stories, telling riddles and getting up diversions to amuse them while they are at work or studies they don't happen to like? If so, she has begun just right, and I will suggest that if she buys a pound of mixed candies of their favorite flavors for them to eat while working and only then there will probably be an end of groaning over the dishes. When the caramels pall, she may order a Punch and Judy show to exhibit while the dishwashing goes on, or engage a comic lecturer, or offer a prize in money, though she will find the show and the lecturer less expensive, as children's demands rise rapidly, and I knew of a boy who thought it wasn't worth while to stop screaming, let alone groaning, over anything he disliked for less than a dollar a time. He was a real boy too, not a made-up one for the occasion. If C. C. D. wants the opinions of seven wise mothers who cured boys of groaning when they were called to help, she will just make those boys understand that it is babyish and foolish to complain over what has to be done, and they should be willing to assist a hurried mother without whimpering, or taxing busier people to amuse them.

NELLIE. "Please mention something nice for our papa's and uncle's Christmas presents. They do not smoke, so we cannot make anything for their cigars; they have slippers, and they use fountain pens and do not need penwipers, and we do not know what to give them." This came too late for earlier answer, but you can lay it aside for the next holiday. A slipper case, like a deep wall-pocket, to hang on a closet door, is a nice present for a gentleman, especially if worked or painted on satin with frame of carved wood, and draped with silk cord and Turkish tassels. A blotting case of fine dark linen, with large leaves of blotting paper is useful; a calendar in large type to stand or hang over the desk, a note book with calendar, rates of postage, hours of high and low tide and such friendly hints are very welcome; a whisk broom with plush pocket and tassels, a ball of office cord in a little satin bag, or a fancy box for postage stamps, a case of court plaster, even sachets for scenting handkerchiefs, and watch pockets or stands, ornamented with chenille, tinsel and satin bows.

JUNIOR. I "Tell me how I can join the C. Y. F. R. U.?" Send your name and P. O. address with

three 3-cent postage stamps to Miss K. F. Kimball Plainfield, New Jersey.

2. "Returning home from fishing last night I caught the swells of a steamer, and she whistled three times. What did that mean?" Short, sharp repeated whistles from train or steamer mean danger signals always.

3. "When and how can I get a full list of Mr. Frank H. Converse's writings?" Address that gentleman care of his publisher, or write to the firm which issues his books.

KETTIE. "I have some turquoises from Arizona, but they are not like those which are in my ring, as the native stones look opaque and green rather than blue. Can you tell me anything about them?" The stone sold as native turquoise is the chalchuitl, a variety of turquoise, held in esteem by the Indians as it was by the ancient Mexicans who ascribed sacred properties to it.

ROSE LOVER. "A friend tells me something about double roses going out of fashion. Is it true? Is there such a thing as fashion in flowers?" Certain flowers and varieties are more cultivated in different seasons than others, but there is not the least likelihood that double roses will ever be less admired than now. At the same time it is true that the taste develops for single roses, old time favorites like the single Scotch, the yellow Banksia, Austrian Brier, Dog Roses and Cherokee roses, the blood royal of the dynasty of natural roses.

RORY. "Who first discovered America, Christopher Columbus or the Northmen?" It is surmised that Columbus gained his ideas of America from charts and relations of the Danes, but this country was visited by Asiatics long before the Northmen swept the sea.

GRACE T. "What and where is the Wilberforce Oak, and how did it gain the name?" It is a noble oak at Holwood, once the home of the English statesman, William Pitt, and under its boughs the noble host and the philanthropist rested while they planned the abolition of slavery in the British dominions.

MAMIE H. "Is it proper to use the word *deader*, or is there any such word? It seems to me improper, for if a thing is dead, every particle of life must be extinct, or it cannot really be dead. Now if every bit of life is extinct in a thing, how can it be more extinct in another, or how can one thing be *deader* than another?" You probably have the saying "deader than a door nail," in mind in your trouble. An animal is not dead till life is quite gone, but vegetable life may die in branches, or at the heart before the tree or plant can be said to be dead, and of such things it is safe to say one tree is *deader* than another,



or, the grass is deader in some places on the lawn than others. Be careful about taking the meaning of words too literally, or you may find yourself among the criticasters, who of all people, are doing most to rob our language of its force and variety. Deader than a door nail, deader than George I., common phrases, are hyperbole, intended to convey strong meaning by words which say more than they mean, and it is best to take such things only for what they are worth.

ANNIE L. B. 1. "In an old WIDE AWAKE I notice you told some one to use dry glue in mending a broken picture frame. I think a better way is to use liquid glue. A bottle may be bought anywhere for ten cents. It is very good for gumming cards in an album." Liquid glue may or may not be good, and the acids with which it is prepared, often injure its adhesive qualities for mending wood. What is the use of paying ten cents for a small bottle of prepared glue, when ten cents worth of good dry glue will supply family making and mending for a year.

2. "What is meant by the phrase 'high seas' as used thus: 'All ships venturing upon the high seas could be captured?'" All nations claim the right to govern seas, bays and straits within their own boundaries, also the ocean within a certain distance of their own shores. All outside this is the highway of commerce, on which ships of every country have free right to come and go, and their enemies in time of war, take the right to capture them if they can.

3. "How can a girl thirteen years old, who goes to school, save a little money?" By keeping hens and selling eggs from twenty-five to fifty cents a dozen, by knitting pillow and furniture lace, and trimmings, or by taking an agency for supplying birthday cards, fancy work samples, ruffles and other things schoolgirls want; by raising garden seeds and flowers.

4. "What is a suitable name for a canary?" *Dite*, the French for speak, is a pretty syllable, like one of the bird's own notes, so is *Vite*, which means quick. Pronounce the words deet and veet. *Petite* is another, *Bride* (breed) and *Pert* are pretty names.

5. "We have a picture of Longfellow's children; one of them is said to be without arms, and it seems so in the picture. Is it really so?" You have got hold of one of the stock questions which have been the worry of editors for the last twenty years. The children in that group were as well supplied with arms as any persons living.

AN OLD SUBSCRIBER. 1. "Will you please tell me how to make a bag for skates?" Make a square bag of baize or thick flannel, stitched in the middle to make a pocket for each skate, the bag to close with drawing strings of woollen braid. The initials of the owner are worked in bright colors on the side of the bag, which may be ornamented further with herringbone border in bright silks, or with figures of boys skating.

HATTIE. "I have a pair of nice black gloves that

moulded last summer, and they look spotted and dingy. How shall I make them look nice again?" Some glove makers have a preparation for retouching the spots and worn finger tips of black gloves, which makes them jet black and smooth again. Kid blacking has been a great convenience for those who like neat boots a good many years, and glove blacking will be hardly less a boon. You might touch the spots carefully with the French Dressing sold for nice boots, thinning the polish with a little alcohol first.

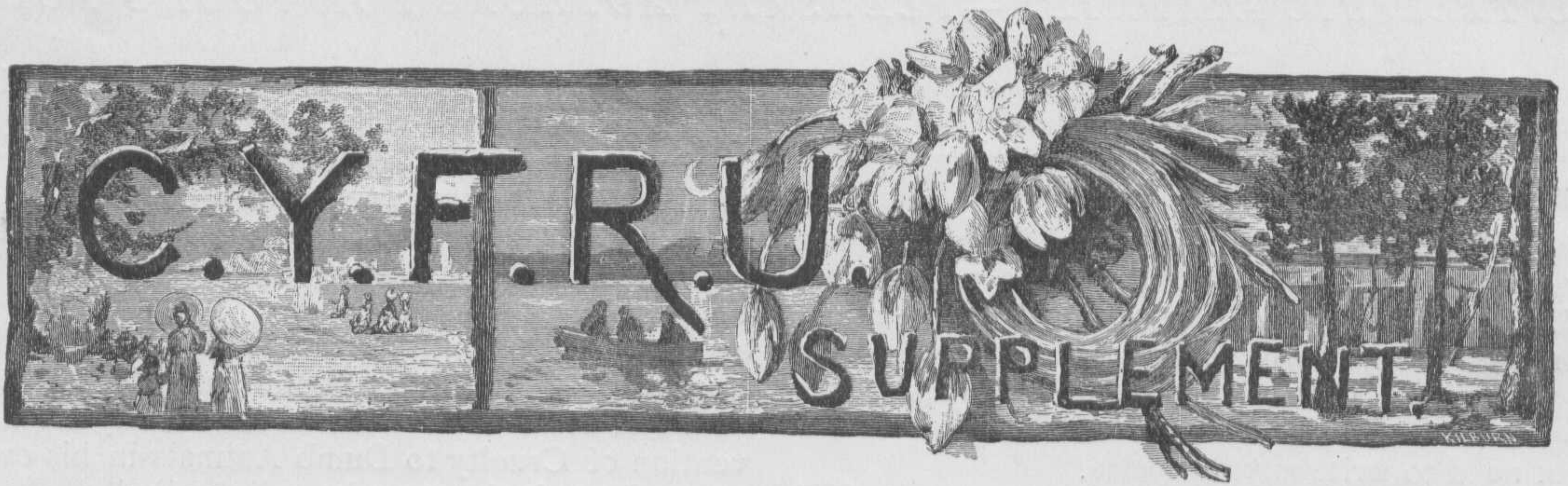
BEULAH wants to read an account of Dickens' life, and asks which is best. Forster's *Life of Dickens* by all means, as being fullest and most impartial, written by one who knew the novelist intimately for years.

2. "Are any parts of *David Copperfield* supposed to refer to Dickens' own life?" Yes, on the best of authority, some of *Copperfield*'s youthful experiences and his married life convey the author's own impressions, but what of it? Everybody has trials and every writer must study character from the people about him, more or less, but they are so changed in working out the story that it is useless to seek the personality which first suggested them. It is better to regard a novel purely as a literary work, and study of human nature, than to occupy one's self with making out which of the author's friends sat for this foible, and which was blamable for the unhappiness of the story. Such over-reaching curiosity rarely comes near the truth. The right way, and the only one true to fact, is to take *David Copperfield* and his *Dora* as types of silly, romantic young people, not as likenesses of Mr. and Mrs. Charles Dickens. Remember, the tendency of Dickens' mind was to exaggerate everything he drew, whether persons or incident.

JOE. "Wanted, an object for a school society." Why not have an Observers' society, to notice and record all the curious, pleasant and amusing facts which come in your way; not in books, but in real life. You can divide it into sections for recording facts in natural history, in character, in humor, all the members to see what they can bring of interest to the meetings, and each contribution, if worthy, to be set down in the record. Notice when the late or great snowstorms come, when they begin, what hour they leave off, how deep the snow is, measuring the highest drifts, notice when the first spring birds are heard, and the date when the first flowers are found. To compare the seasons year by year, put down the readings of the thermometer on very cold or warm days, mention unusually fine specimens of common plants, and the situation they grew in. If any one knows of a very kind, high-minded or generous thing, done by a person of his acquaintance, or an interesting experience, that may go on the record of character. Any one who hears a good joke or knows a piece of fun may tell it, and the collection of such jokes may enrich the volume of American humor, who knows! Only learn to see for yourselves, and notice what goes on about you, not taking everything from books.

THE WISE BLACKBIRD.





LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR  
YOUNG FOLKS.

BY AMANDA B. HARRIS.

VIII.

DR. JOHN BROWN.

YOU will know the man from all the other and many John Browns the moment I mention *Rab and his Friends*. You have read that: you found it one day in an old scrap book belonging to your mother, or your aunt, or your elder sister, or somebody, and you cried over it, and you need not be ashamed to do so if you did, for grown-up people have done the same. May you always your life long, have a tender spot in your heart that will ache over a story so full of pathos as that of Rab and his wife and the old gray dog!

The story appeared on this side of the water twenty-five years ago, copied from a British paper; and immediately one editor after another took it upon it (for editors know a good thing when they see it), and soon it was in the newspapers all over the country. There was no author's name to it, if I recollect, and that was all we knew until we met "Pet Marjorie."

And who was she, do you ask?—that is, if you take it for granted, as I do, that you do not yet know that immortal child. You will find the sketch of John Brown's writings as *Marjorie Fleming*.

A wee bit girlie, whom Walter Scott was fond of when he was about forty and she was six or seven—his pet, his playmate, his bairn, his "daughter," his little wife, his "bonnie wee croodlin doo," (as he called her, but is not the Scotch delicious?) and a thing that was sweet and coaxing and tender and caressing. Now fancy him one afternoon in Edinburgh, when he could not set himself to work on *Waverley*, which he was then writing, starting up and saying to himself, "I can make nothing of *Waverley* to-day; I'll awa' to Marjorie. Come wi' me, Marjorie, you thief." And then setting off with the dog in a snow-storm to the home of his old friend, Marjorie's aunt, and fetching the child home with him in

plaid, as a shepherd would fold away a lamb, and having a gay evening there with her in his "den," the big broad-shouldered man lying in front of his great armchair, and made him



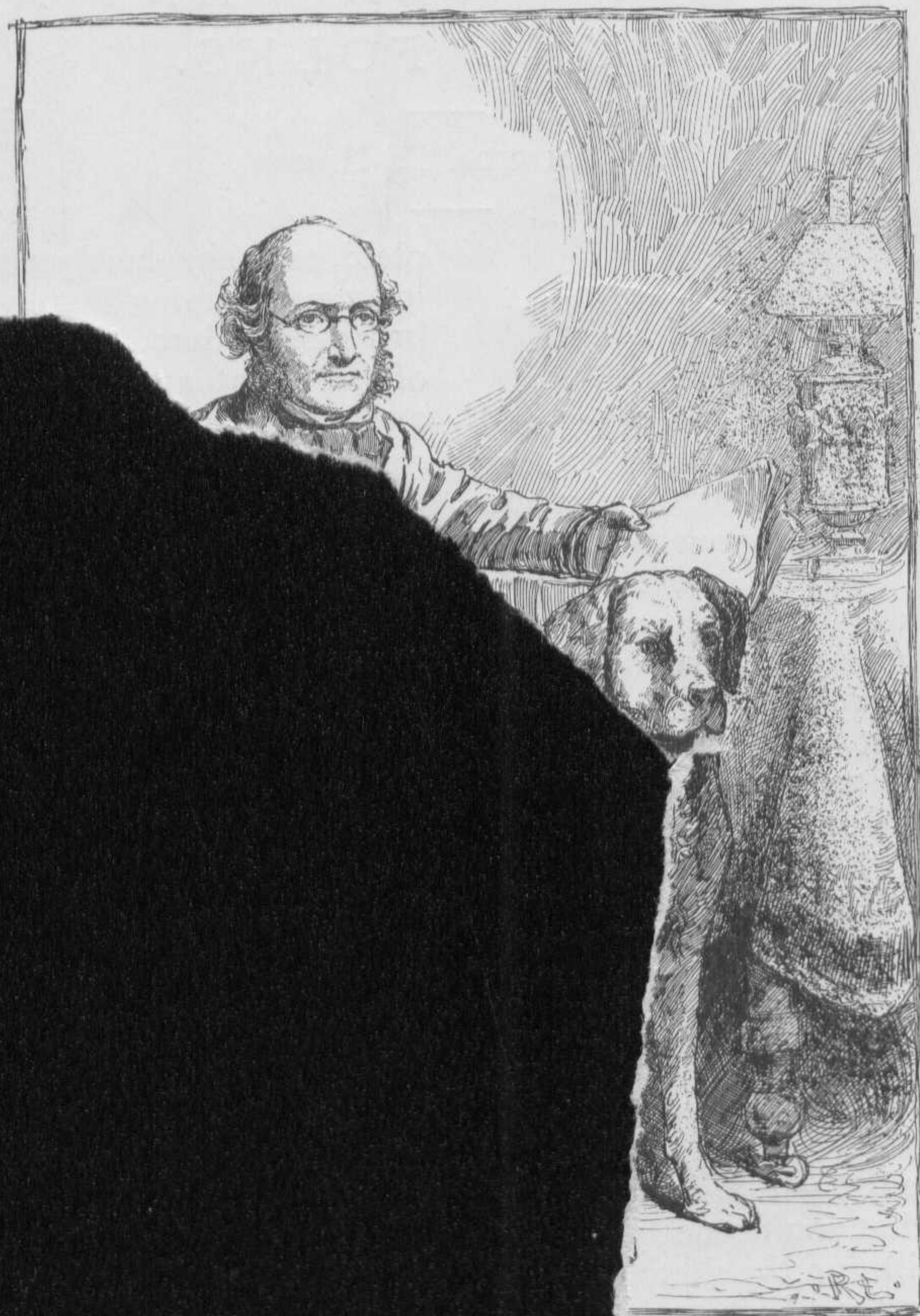
nails. Isabella is teaching me to make simme colings, nots of interrignations, periods, commoes, etc. . . . As is this Sunday I will meditate upon Senciabie and Religious subjects. First, I should be very thankful I am not a beggar.

You will read it for yourself, and if you are not touched by the story of this bright, eager, sensitive, wilful, loving little creature, remember it is your own misfortune; but you will grow to it and it will grow upon you. This and Rab are two of precious things among the treasures of literature. Dr. John Brown did not need to write anything else.

But there are other good things. You will read *Queen Mary's Child Garden*; and all the papers

and love in it as that capital sketch. And with what a loup the sentences keep on!

Next comes *Our Dogs*, and then, *More of Our Dogs*. His heart was warm enough and wide enough to take in the animal as well as the human race. He was known in Edinburgh by the name already given, the "beloved physician;" and dogs, if they could speak, would repeat the words — all Edinburgh dogs would, all Scotch dogs would, all dogs who have heard of Rab. He was a whole Society for the Prevention of Cruelty to Dumb Animals in his own person. One single story he tells, called a *Plea for a Dog Home*, is more potent than any essay on the sub-



at ever was written; about a ragged little terrier who gave his leg a nip one day as he walking along, and then another "perhaps a little r," to attract his attention, and then led him to an old shed where a mother pointer lay in the midst of her raging, yelling litter. The r, which he afterwards named "Nipper," and other "Perdita," had faith in the doctor's face, in such a face, so have we. But not wholly or mostly of dogs and children did write; indeed only a small portion of his three



volumes is occupied by them — but that small portion tells. Some of the papers — which a friend of his was pleased to designate as “Brown Studies” — are criticisms thoroughly enjoyable, and reminiscences of men and places. One is *Jeems the Door-keeper*, who kept up family worship alone after his wife and child died, and always had “seven fixed hymns, one of which he sung on its own set day:” on Sunday morning it was French; on Monday it was Scarborough; Tuesday, Coleshill; Wednesday, Irish; Thursday, Old Hundred; Friday, Bangor; Saturday, Blackmoor; and at evening worship he reversed the order.

You will not be slow to see that Dr. Brown was gifted with the most delicate humor; and an appreciation of that subtle quality which is to literature what fragrance is to a flower, is something that one should not fail to cultivate, for it is an essential element in the make-up of some of our choicest writers. Some of those Scotch giants like Kit North were brimming over with it; their sense of humor was as keen as their intellects were broad. Not to see and feel it, not to be able to fully enter into it, is a deprivation of one of the richest sources of enjoyment in reading; almost like being physically without the sense of smell or touch. In Brown the quality was of the finest — “the expressed juice” of the man, a perpetual delight to his friends.

In “Jeems” is that unique sermon in brief, with its heads up to “eighthly,” and a personal application which our beloved author preached from the following text:—

On Tintock tap there is a mist,  
And in the mist there is a kist,  
And in the kist there is a cap;  
Tak’ up the cap and sup the drap,  
And set the cap on Tintock tap.

There is your text; and the sermon is one wholesome for boys and girls, and everybody: about climbing the Hill Difficulty, with an object before you; what you ought to do, and what will come to pass if you do what you ought to. Not in this discourse only but on many a page are brave, strong, lifting words, for the help of young folks and all folks; not put into any one essay, not in stereotyped form of advice, but they drop by the way, out of the fulness and fervor of his vehement but ineffably tender spirit.

His paper, *With Brains, Sir*, was written for medical students, and the series called *Health*, for working people, but they are full of suggestions which will set any reader to thinking and longing to make the best and most of himself; no matter if they were prepared for maturer minds, they will stimulate the youngest, and it is better far to read things that are above your head than to let yourself down.

You should pore over the one on *Presence of Mind and Happy Guessing* (likewise designed for medical students); and above all, read *Education through the Senses*, which is full of meat. It will put new ambition into you, and make you have faith in yourself and what you can do; you will thrill with the joy he

speaks of, “of origination, of activity, of excitement — the play of the faculties, this is the true life of a boy, not the accumulation of mere words,” and to “be able to *do* something.” He closes thus:

So then, cultivate observation, energy, handicraft, ingenuity, *outness* in boys, so as to give them a pursuit as well as a study. Look after the blade, and don’t coax or crush the ear out too soon, and remember that the full corn in the ear is not due till the harvest, when the great School breaks up, and we must all dismiss and go our several ways.

Another thing to be seen in his writings is the exceeding love he bore the streams and the glens and the “huge, sunny hills” of his native Scotland; you will find it abounding in the sketches called *Minchmoor* and *The Enterkin*. And in other brief ones notice his way of telling a little incident that an ordinary writer could make nothing of, and showing you just what manner of person some one was; for instance, that on the Duke of Athole, or the one on John Leech. More than one distinguished author has envied him his power in this respect. He had a way rare enough, but so modest was he and self-distrustful that he did not know it; he did not appreciate himself, but friends and readers understand too sadly well that it will be long before they look upon his like again or have the privilege of seeing the work of such peculiar genius as his.

This John Brown was the fourth of the name in a direct line; his father, grandfather and great-grandfather were all ministers, men of mark, men who thought out things for themselves and were a power in the Church; strong, gifted Scotchmen, devout, and living lives of reverence and godly fear, but tender-hearted and with a great Scotch gift of saying shrewd things. In the loving paper, *My Father’s Memoir*, their namesake, who honors the name and his descent from such a stock, gathers up a rich store of reminiscences and incidents, and lets us have glimpses of his own childhood — if he had only given us more of them!

Can anything be more childishly sweet than this about child-nature, meaning himself?

A child begins by seeing bits of everything; it knows in part — here a little, there a little; it makes up wholes out of its own littles, and is long of reaching the fulness of a whole; and in this we are children all our lives in much. Children are long of seeing or at least of looking at what is above them. They like the ground, and its flowers and stones, its “red sodgers” and lady-birds, and all its queer things; their world is about three feet high, and they are more often stooping than gazing up. I know I was past ten before I saw, or cared to see, the ceilings of the rooms in the manse at Biggar.

Biggar, in Lanarkshire, was where he was born; and the manse was that dear home into whose most sacred, secret place he admits us for a moment while he tells of that morning when he was not six years old, when he and his little sister Janet were “awakened by a cry of pain — sharp, insufferable, as if one were stung,” and knew whose voice it was, their father’s, and running into the room — but let him tell it:



There lay our mother dead. She had long been ailing. I remember her sitting in a shawl—an Indian one with little dark-green spots on a light ground—and watching her growing pale with what I afterwards knew must have been strong pain. She had, being feverish, slipped out of bed, and “grandmother,” her mother, seeing “her change come,” had called my father, and they two saw her open her blue, kind, and true eyes, “comfortable” to us all “as the day”—I remember them better than those of any one I saw yesterday—and with one faint look of recognition to him, close them till the time of the restitution of all things.

Need I say that he, whom you will know in part from such glimpses, had a deeply religious nature and a pure and noble character; affectionate and sympathetic as few men are in the sorrows of others? The human race is made better because such a man has

lived, and we may wholly believe that that friend spoke for many others when he said last May, that they had lost the “sweetest, purest, brightest of Scotland’s sons.”

John Brown was born September 20, 1810, began to practice medicine in Edinburgh, at the age of twenty-three; and that profession, not literature, was the business of his life and Edinburgh was his home. His death took place May 11, 1882.

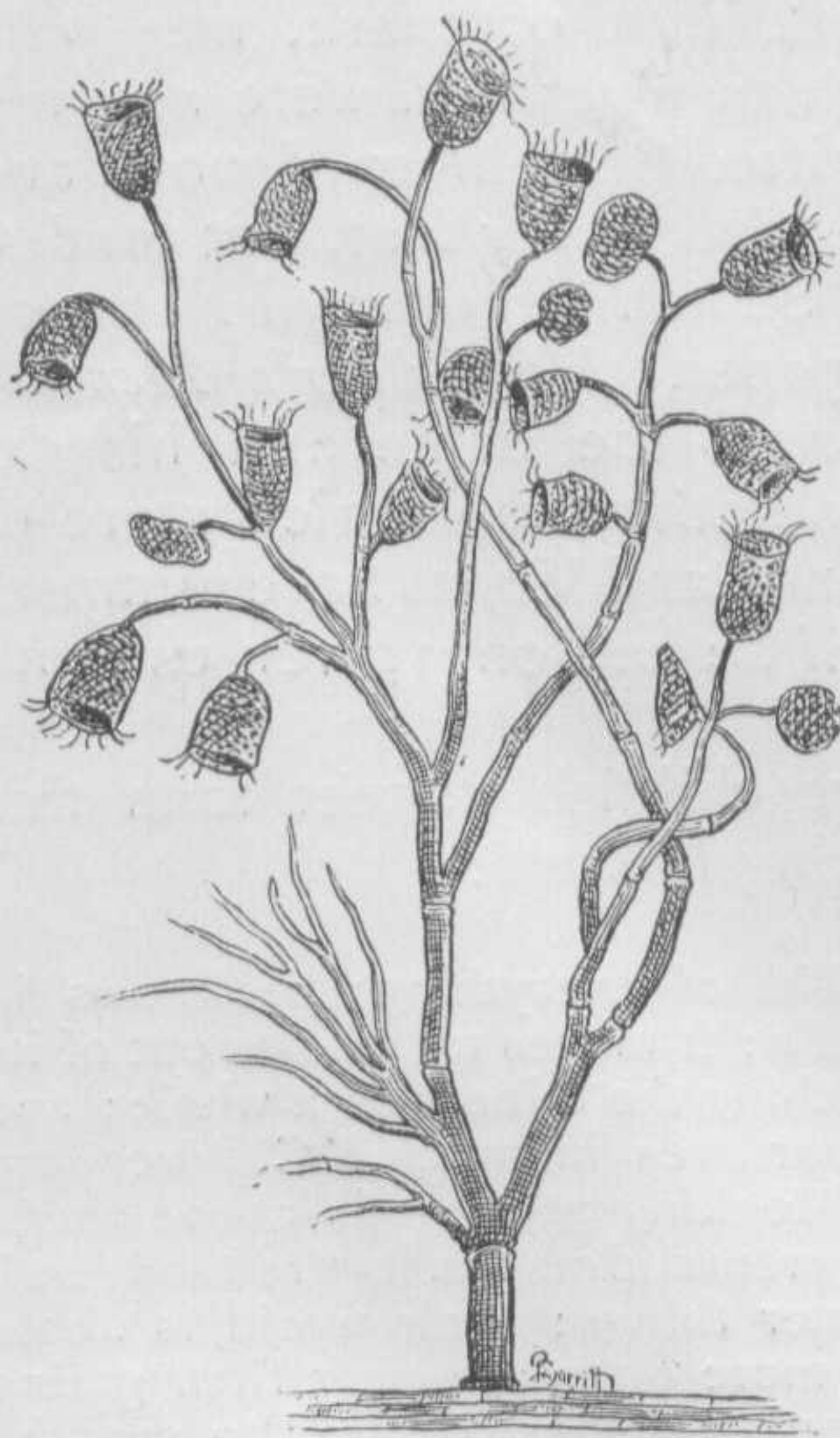
NOTE.—His writings are contained in three volumes. The first series was collected and published in his own country, in 1858, and the second in 1861, under the title *Horae Subsecivae*. The third in 1882. All have been reprinted in this country as *Spare Hours*. The sketches mentioned here are in the first and second series; the third being “more purely professional.”

## THROUGH A MICROSCOPE.

BY MARY TREAT.

### VIII.

#### THE VORTICELLAS.



CARCHESIUM POLYPINUM.

THE tree-vorticellas must ever stand first among all the varied and beautiful objects which the microscope reveals. A species common in New England and the Middle States is known scientifically by the name of *Carchesium Polypinum*. It is impossible to convey a true idea of its beauty from a dead black and white drawing. To be appreciated it must be seen in all its living glory—charming little animals resembling bell-

shaped lilies on the ends of lovely transparent stems.

How curious nature is in the microscopic world! Only think of a tree of living animals! The stems of the tree are jointed, and the little creatures can sway the branches about and even throw them into a spiral coil so as to bring themselves near the main stem. This gives them the appearance of being very polite toward each other; they bow and courtesy as if preparing for a grand quadrille, and they are decked out

in gay colors, red, green, and yellow. The margins of the little cups are fringed with hairs, or *cilia*, which they can put in such rapid motion that it makes a current in the water and brings little particles to their mouths which they consume as food. They do not accept everything that comes in the current. They seem to know what they like as well as the higher animals, and act as if they were vexed with some of the particles, rejecting and sending them off with a rapid whirling motion.

The largest of these fairy-like trees are visible to the naked eye; but it will be necessary for a novice in such matters to use a good strong lens to be able to find them readily. They are attached to plants growing in water. I have always been most successful in finding them among the water-milfoil (*Myriophyllum*) several species of which grow in New England and the Middle States. Some of the species are found in deep water, others in shallow ponds.

The Bladderworts (*Utricularia*) are also good plants to search among. They grow in similar places. On either of these plants we shall be sure to find a good many interesting creatures. If we fail to find the tree, we may secure other species of vorticella, all of which are very beautiful.

Do you know the *Utricularia*? I will devote the next chapter to these curious plants, and to the microscopic animals which they capture.

It will take a little practice to learn where and how to collect material for the microscope. We should not depend too much upon books in any branch of natural history. To be successful, you must observe for yourselves, experiment and examine independently, consulting books that you may name and classify, that you may recognize and name what you



find. If you fail to find specimens in one spot, try another.

You should not fill your collecting bottles more than two thirds full of water, nor crowd too many plants in them. These little creatures must have air in order to live, as well as the higher animals.

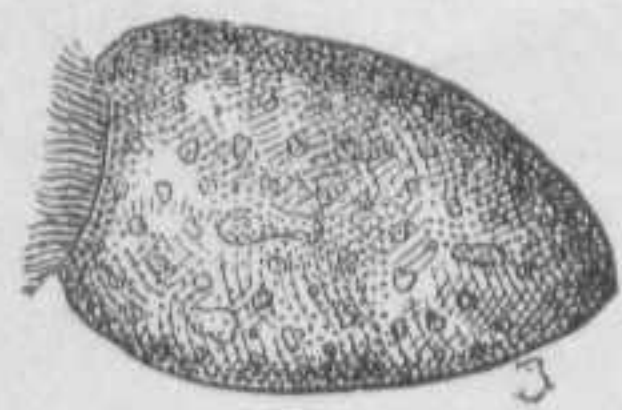


FIG. 2.

The finest tree-vorticellas I ever found were in Florida, in the St. John's River. These trees were attached to long, floating stems of *Myriophyllum verticillatum*, and were unlike any species that I ever found at the North. They were very large—in a microscopic sense—plainly visible to the naked eye, and it took only a moderate power to bring out their beauty.

*Vorticella nebulifera* is quite common in swamps and ponds. We find it attached to a great number of water plants. This species is not built up in the form of a tree, but it is nevertheless beautiful and graceful. The delicate, slender stems start from a node, or rounded mass, sometimes fifty or more of these fairy like creatures in one colony, all attached to a common centre, swaying about, coiling their delicate transparent stems, and again uncoiling quick as a flash, apparently dallying and playing, but never interfering nor becoming entangled one with another.

The *Stentor* is another member of the *Vorticellinae* family. It is one of the largest of the infusoria, plainly visible to the naked eye, and one of the most interesting and curious of all the strange animals in the microscopic world. It assumes various forms. When swimming, it looks round and plump (Fig. 2), and rushes through the water pell-mell, knocking the smaller animals right and left, always seeming to be in a great hurry, unless two friendly ones happen to meet, when they frequently stop and put their heads together a moment as if exchanging greetings, then away they sail again, dashing through the water,

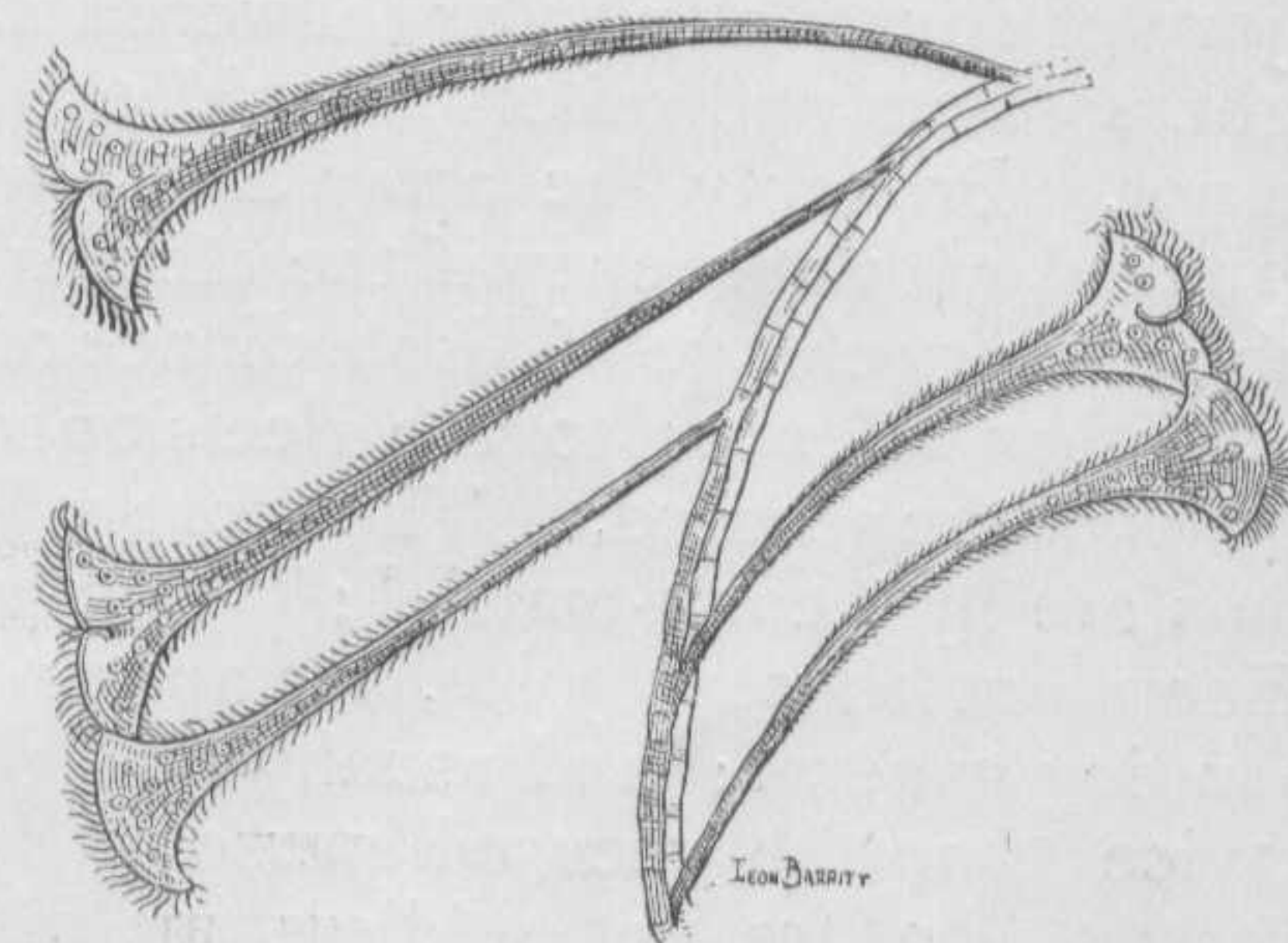
capturing and devouring the smaller creatures as they go. And now a couple meet that are very communicative—two gossips, no doubt! At all events, they put their heads together and conclude to have a good sociable time.

And they are sensible enough to know that they cannot stand around loose in the water or public highway. So they select a cosy spot and fasten their feet to a plant or some firm object, and stretch out their footstalks sometimes to a great length, making veritable trumpets of themselves. (Fig. 3.)

And who knows what grave matters may be settled during these conclaves? or perhaps they are only rehearsing gossip, as they have had every possible chance to see what was going on among their neighbors.

Sometimes one settles down alone near a group of others, and seems to proclaim in stentorian voice that it is re-

ception day and he is ready to receive. Or perhaps he is simply a herald as his name indicates, whose business it is to conduct ceremonies and regulate affairs! At



THE STENTORS. — "VERITABLE TRUMPETS."

any rate, though our ears are too dull to catch the voices of these curious beings of a lower world—so near, and yet in another sense, so far away, it would be difficult to believe that these animated creatures have no means of communication and nothing to communicate.

## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

### VIII.

ANDRE AND MACKENZIE: COURTS MARTIAL.

WHEN persons in ordinary civil society are to be tried for a crime, it is considered very important to give them a trial by jury. A "jury" consists of twelve men chosen by lot from the reputable, trustworthy residents of the part of the country where the offence was committed. The twelve hear the

witnesses and lawyers' speeches, the judge explains to them the law, and they are then shut in a room by themselves, where they discuss what has been said, and vote. Whenever all are agreed to say "guilty" or "not guilty," they return to the court-room, and the chief juror or "foreman" announces the decision. There are very strict laws for securing to every accused person a trial by jury, and for making sure that the jurors are honest and impartial.

That the jurors should be the social equals of the



accused has always been deemed a valuable element in the privilege of trial by jury. In England, where people are classed as "lords" or "commoners," if a lord is charged with an offence, he is not tried by a jury of commoners, but by the House of Lords; for the saying is, that every one has the right to be tried by his peers; that is, by his equals. In America there are no lords; a Senator or Representative may be tried by his neighbors, for the saying in this country is, that "all men are born equal." Yet there have been some laws that a foreigner or that a negro should have the right to have some persons of his own country or race summoned on a jury which is to try him, in order that the trial may be by his equals.

It is interesting to know that trials in the army or navy are conducted on the opposite principle. A soldier or sailor is not tried by his equals, but by his superiors in rank. Why there is this difference would be hard to explain. One would think that if trial by a jury of equals chosen by lot were a natural, valuable right, soldiers and sailors should enjoy it; but they do not. Probably the army and navy could not be managed with efficiency if the officers were obliged to submit every charge of disobedience of orders, mutiny and other offences to the decision of some of the equals of the accused. Therefore military and naval trials are by "court-martial;" that is, by a board of officers not chosen by lot, but appointed by the commanding general; and usually of higher rank in the service than the accused person. In time of war persons who are not soldiers are often tried in the military manner, instead of by a jury.

To illustrate this difference, I shall give a brief account of a military and a naval trial. Every reader knows the story of Major André. When Benedict Arnold, during the Revolutionary War, was planning his treasonable surrender of West Point to Clinton, the English general, the latter sent Major André to Arnold to discuss arrangements and bring papers; and he was caught while on his return, going in a false name, wearing a disguise, and carrying the papers hidden in his boots. These circumstances made him a spy. It is not considered necessary in war to give a spy a formal trial, therefore André's fate might lawfully have been decided by General Washington alone. But Washington chose to order a military trial. Instead of choosing a jury by lot from among people living in the neighborhood of West Point, and thus, perhaps, drawing several Tories who would have been sure to vote "not guilty," he selected army officers, six major-generals, one of whom was the famous Marquis de Lafayette, and eight brigadier-generals. Besides these there was, as there always is in a court-martial, a "judge-advocate," whose duty it is to conduct the prosecution, and explain the law to the other members of the court. The name of the judge-advocate in the trial of André was John Lawrence. This board of fifteen officers assembled at Tappan in New York. André was brought before them, was shown the letters and

papers which had been taken from him, and was asked what explanation or defence he had to give. His story was heard, but it amounted to a confession that he had come within the American lines secretly and in disguise to obtain information for the British general; and the board reported to General Washington that by the laws of war he should be hung as a spy.

A trial of another man by court-martial followed — was commenced on the next day after the examination of André. The accused was a lawyer living in the neighborhood of West Point, who was accused of having assisted Arnold in his interviews and arrangements with André. The court was composed of a colonel, a lieutenant-colonel, a major, and nine captains, with John Lawrence again as judge-advocate. On André's trial it seems not to have been thought needful to call witnesses as he did not deny the facts; but upon Smith's trial many witnesses were examined, among them two of the men by whom André was captured, who gave a minute account of the circumstances of the arrest. These witnesses clearly proved that Mr. Smith had rendered Arnold considerable assistance, that he accompanied Arnold on one or two of his expeditions to negotiate with Clinton, that Arnold and André were at Smith's house conferring together, one night, that Smith furnished André with the suit of clothes he wore as a disguise, and aided him in starting on his way back, and similar matters. But the board doubted whether Smith knew, at the time, that Arnold was plotting treason; he might, they thought, have supposed he was obeying lawful orders and assisting Arnold in the performance of duty; therefore they acquitted him.

Two remarkable naval trials arose out of the misconduct of a midshipman named Philip Spencer, on board the brig *Somers*, in 1842. The commander of the vessel was named Mackenzie. He learned from Wales, the purser's steward on board the ship, that Spencer was plotting a mutiny. Wales' story was that Spencer had told him that about twenty of the crew had agreed to seize the vessel, kill Commander Mackenzie and other officers, and sail the ship as a pirate; and had asked him to join. Spencer had also said that he had a memorandum in secret writing of all the details of the plan, and of the names of those who were in the secret. They intended, he said, as soon all was ready, to start a make-believe fight among themselves upon deck, and the officers, when they interfered, would be seized and thrown overboard. Upon hearing this disclosure, with many particulars, Commander Mackenzie directed that Midshipman Spencer should be arrested, which was done. The culprit's "locker" was then searched, and in his razor case were found papers written in Greek characters, which appeared to contain lists of names such as Spencer had described to Wales.

For two or three days after the arrest, the Commander kept Spencer in confinement, hoping to be



able to carry him to port for trial; but at length he became suspicious that the other mutineers were proceeding with the plan. He arrested two more, and put the three in irons; but this did not seem to quiet the difficulty. Indications of an intended mutiny increased, and the commander became satisfied that his vessel was in danger. He decided to have such a trial as he could under the circumstances. If he had selected jurors by lot, probably several of the mutineers would have been drawn, and, of course, they would have voted "not guilty." He called a council of seven officers and midshipmen whom he knew he could trust, laid all the facts before them, and asked their advice. They heard the stories of Wales and some others, examined the Greek documents, and decided that the prisoners had been guilty of plotting a dangerous mutiny, and that the safety of the ship and of the innocent persons on board demanded that they should be put to death. Accordingly they were, during the same day, hung.

This trial, like the examination of André, was not

strictly a court-martial, for both Washington and Mackenzie acted, finally, on their own judgment and responsibility, the councils being called only to advise them. But when Commander Mackenzie's vessel reached home, he was tried before a formal court-martial on the accusation of having committed murder by hanging the three prisoners. His council argued that there were strong reasons for believing that a mutiny was in progress, and the vessel and the lives of those on board were in danger; and that when such is the case, a commander, if he cannot safely carry the offenders home, may put them to death. The judge-advocate contended that as no one had actually done anything mutinous, the commander should have been more patient: that he was bound, at least until some attempt at violence occurred, to endeavor to carry the prisoners home. The court decided in the commander's favor. Probably the fact that the members of the court were all officers in the navy, would have some tendency to cause such a decision.

## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

### VIII.

#### CURTAIN POLES.

PERHAPS this paper will sound more like upholstery than carpentry, but there is carpentry in it, and of the sort too that boy-carpenters can do just as well as men-carpenters, and make changes in accordance to the requirement of the windows for which they are planning, the material at hand and their own taste. Always remember that mere rules for such work are not enough, and that you must keep on hand a good supply of *common sense*.

If you should look in the yellow-covered Farmer's Almanac, hanging by a loop in the chimney corner, you'd see, "About this time look out for clearing weather;" that means clearing out and cleaning up and setting the house in order inside, as well as old Mother Earth outside: what our mothers call "spring cleaning." Curtains come down to be washed and put up again, and it's a good time, too, to put up curtains where there never have been any, for nothing makes a room look more homelike and inviting than drapery of some sort or other, no matter how simple.

It used to be the fashion to tack curtains across the top of a window-frame with a strip of stamped brass-work called a cornice, or a bit of bright chintz,

or turkey red, or something like a ruffle, to cover the edges; but curtain poles, or rods and rings, are the fashion now. They are prettier than the other things, and have one advantage beside: the curtains can be pushed quite to one side when one wants more air or light, and can be drawn close together again when more perfect shade is needed.

Suppose you want to fix up your own room to look pretty and not cost very much. I found it good fun to make something useful out of something other people had discarded as useless. I'll tell you how I made my room look cosey, and what I did it with. It had just one window, a half-dormer as they call it, and looked to the west, out over the hills; but the sun shone in very bright and hot in the afternoon, and I had to have a dark shade which I fitted myself from one that had belonged to a larger window. It kept the sun out, but it was not pretty, and I was determined to have some draperies. Of course I could not make curtains, for a boy is more handy with a hammer than a needle; but when mother found what I was up to, she said she'd give me the curtains if I could do all the rest. They were very simple, just cream-colored Nottingham lace, and cost \$1.00. They might have been made of unbleached strainer cloth at six cents a yard, with a ruffle, if this had been for your mother or sister who didn't mind sewing; but it is the pole I mean to tell you about.



I'm sure to look at it you would never guess what that pole was, or where I got it.

Up in the attic, in one corner, I found an old United States map, so old, so out of date that as a map it had been useless for years and years, for it was printed when the State of Ohio was "way out West." The map used to hang in grandfather's library half a century ago. It had black rollers with acorn knobs on the ends. I thought right away that the smooth slender pole would be just the thing for a curtain pole if I could get the map off without splitting the roller which was of soft pine stained black. A sharp knife and a little care did it. One of the knobs was easily loosened. Then I measured carefully over my window and cut the pole the right length and fitted the knobs smoothly into place. A little sandpaper and a coat of varnish made my stained pine roller look like ebony. But what was I to do for curtain rings! The pole was too slender for the heavy wooden rings sold by the dozen at the upholsterer's; besides I did not want to spend any money. Back to the attic I went and rummaged in what we call the "trumpery box," full of the odds and ends that accumulate in an old house. Among a lot of brass knobs and hooks and hinges, I came across a lot of dingy metal rings tied together with a bit of stout string. The rings were about an inch and a half across; I could not tell what the rings were made of, they were so black, but I thought a good washing would bring out the complexion, so I put the rings into a bath of ammonia and soda, which soon showed that under the black coating was something very much like brass. A stiff brush and a little fine pumice gave me a dozen glittering rings, six for each curtain. I divided the curtains evenly; with strong thread fastened the rings in place on the upper edge of each curtain and slipped them on to the pole. Two inches from the ends of the pole I screwed the little rings through which the cord had passed when the map was hung. A little hook at each end of the upper window frame served to hang my pole, which of course was very light, but heavy enough for muslin or lace. In the same "trumpery box" I found two brass knobs (door knobs, I guess they were). I screwed one of these each side of the window and looped back my curtains. There was my window, as new-fashioned or as old-fashioned as you choose to call it, but very pretty and inexpensive.

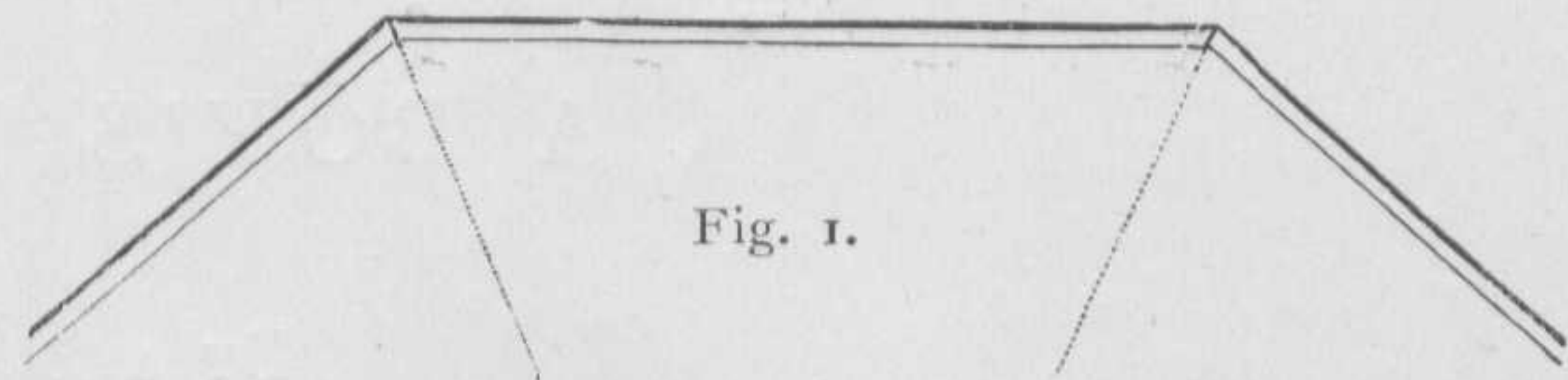
There are few old houses in the country that would not give at least as much to work with as I had. The old rollers on old-fashioned paper shades, such as you will find in lots of up-country attics, would make just as good poles stained and varnished. Even the acorn caps are not essential, for many of the most fashionable *portieres* and curtain poles, nowadays, especially those of bamboo, have no caps at all on the ends: only then you put a screw in at right angles, to keep the end ring from coming off.

That was the first curtain pole that I put up. The

next room I tried my hand on had a bay with three windows, and was harder to manage, but it did not cost very much after all. I saw an advertisement of an odd lot of curtain poles with rings and brackets complete for seventy-five cents apiece. Since then I have seen them advertised for sixty cents, which is cheaper than you can get the wood and turn them for yourself.

I found that two poles would do for the three windows, for the side windows were narrow, and half a pole was enough for each. I only wanted two ends instead of the four that belonged with the poles, so a trifle was allowed, enough to give me some extra rings and two extra brackets.

The first thing to do was to get the angle of the bay: this I did with some mathematical instruments, but you might not have those handy, and this way will give it near enough. Take a good-sized piece of stiff paper (stout wrapping paper will do), lay a straight edge on the floor against the mop-board of the middle window, and fold the end of the paper to exactly fit the side mop-board, something like this. Then fold the straight edges together and you will have the angle shown in the dotted line (*Fig. 1.*).



Measure length of middle and side windows and cut the poles at the angle shown by the folded paper: a few brads will secure the slanting ends when they are neatly put together.

The brackets that come with these cheap poles are iron spikes bent up at one end. Two are used for each pole; they are driven into the wall about four or five inches from the ends of the poles, and the poles rest on the brackets; of course the joined corners count as ends, and are supported in the same way. Some prefer to put ring-headed screws into the poles and slip the rings over the ends of the spikes; and more expensive poles have brass "cup brackets" which of course are ornamental, but also expensive.

The wooden rings have ring screws on which to fasten the curtains. The number used is a matter of taste and depends upon the stuff the curtains are made of, the size of the folds you want, and the number of rings you have. Five or six do very well for a yard-wide curtain. Be sure and divide evenly; put one ring at each upper corner and the rest as they come; a few stitches with coarse thread will secure them, or better still, an inch of tape slipped through the ring and fastened by the doubled ends on to the edge of the cloth. You can buy curtain hooks if you like, and have them sewed on. These are something like big dress hooks: the advantage is, that when you want to take curtains down you just unhook them



from the rings without taking the poles down at all.

I know a boy who made a pretty pair of curtain-poles out of two straight, slender beech saplings; he twisted rings out of stout wire and wound them with crossway strips of dark cloth. For muslin curtains, loops of bright ribbons instead of rings would be prettier still on such rustic poles.

Would you like to know what curtains went on to my sixty-cent poles? They are very "æsthetic" in

color, but are just soft Canton flannel at a shilling a yard. The centre of olive, the ends dark crimson with bands between of darker olive. These are looped away on either side with bands made of the flannel and underneath are full curtains of six-cent scrim, (unbleached).

But curtain-making belongs to the girls, so having told you how to make the poles and put them up, I will leave the rest to them.

## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

### VIII.

#### TO CLEAN AND TO KEEP CLEAN.

THE neighbors who remember her, speak of my grandmother as a pattern housekeeper of the old style. With eleven children, a large circle of acquaintances to entertain and a fastidious husband, she managed to do and direct everything for house and family in the nicest manner, without losing her serenity, or being other than delicately neat in dress. In the Yankee phrase, "dirt wouldn't stick to her." Therefore I have always had great respect for one of her favorite maxims handed down, that "one keep-clean was worth a great many make-cleans."

Still one must make clean before she can keep clean, and Irish Katy has not left the kitchen in the glorious neatness we were talking about last time. I don't envy you the housecleaning, but if bringing purity, order and safety into the dark corners of the world is a heavenly mission, yours is one—and where should such purity and safety begin if not in one's own home? You have read of Miss Octavia Hill, the English lady who rented tenement houses in the worst part of London, and had them cleaned, taking part, I believe, in the scrubbing and whitewashing with her own hands, to give the wretched poor a glimpse of that cleanliness which is next to godliness. It was one of the finest missions of the century, and I have thought some homes where education and taste had place, needed a similar visitation. One would think the pictures would leave the walls, the books come down from the shelves, the tidies and knickknacks get up and shake off the dust, in homes kept with the negligent half-order, which is all people seem to attempt now, their time being so much taken up with Kensington work, Tennyson clubs and "socials," to see that their houses are pleasantly or wholesomely kept. They let the poisonous dust

gather under the beds and in corners, allow contagion to breed in vile, damp places left by slops, and food becomes tainted in their close closets, their very garments gather musty odors, while they are taken up with finer things as they suppose—as if one read poetry with a face unwashed! There is more sincere refinement in the clean bare floors, spotless pantries and sweet, airy bedrooms of plain homes where pictures and books are luxuries, than in fine houses where everything is attended to save the cardinal virtues of health and neatness. Thorough cleanliness in every room and corner, from doorstep to roof-tree, is what you must exact before you lay pretty carpets, hang illuminated mottoes, and fill the windows with flowers and the shelves with books and china. Nor is this strict neatness going to take up all your time and strength as foolish women try to persuade you. A girl or woman in good health ought to be equal to taking care of a small house or flat in the best manner and have half her time left for study, visits and needlework. Women find housework tiresome and dragging because they never half learn it; and partly because they make up their minds to hate it as some girls hate the piano. I should think women would hate housekeeping—the way plenty of them do it. Can't you take it up for something better, a gracious ideal that is to be the reality of your artist friends' pictures and your favorite authors' kindest scenes, where everybody who enters will find himself at his best, under its sunny conditions of comfort?

The first step toward this is, to make things clean; the next is to learn how to keep them so.

Katy meant to leave the kitchen neat, for she mopped the floor, blacked the stove, and wiped the windows. Put on your oldest calico (let it be a clean one) and your sweeping-cap, and we will see how much is to be done after her. You don't want to imitate the nonsense of novel heroines, who always appear in the kitchen with white collar and



spotless cuffs. A well bred woman never wears anything not suited to her work. You may put on your lily-white cuffs after the cleaning, but a white handkerchief round your neck to keep the dust out, and plain sleeves, are the proper dress to-day. Have everything eatable covered closely and put away, tables and sink cleared, plenty of hot water, two pails, an old broom and a clean new one, two scrubbing brushes, a stumpy whisk broom for cleaning windows, a stout nut picker or sharp skewer of hard wood to get the dirt out of cracks, plenty of cloths for wiping glass and paint. Old flannel or merino underwear make soft mop-cloths which wring easily. You must have good tools to work with, and a well set mop and large cloths will do the cleaning in half the time of poor ones. If you haven't old cloths enough, it pays to buy a yard or two of coarse towelling for floor cloths, and sixpenny unbleached cotton for wiping paint. For your cleaning outfit you will want:—

A bath-brick which will cost 5 cents, a peck of clean sand, 10 cents, a cake of mineral soap, 8 cents, a pound of whiting 5, pound of washing soda 5, a can of solid lye or potash, 10, a quart of cheap ammonia, 25, mop, 50, broom, 25, two whisks, 10, flannel, 25, 2 yards of towelling, 20, 2 yards of cotton, 13; in all \$4.16, say \$5, to allow for difference in prices. You would pay this for the poorest servant one fortnight, or for a charwoman half a day each week in two months, who would not do your work nearly as well, and would waste twice the supplies you will want in the time. I make this little calculation to show that you save enough to allow yourself every needed help which women are apt to stint themselves.

All things ready, sweep the cobwebs down with your clean broom which will not leave a streak along the walls, get up on your step-ladder, and with brush and dust-pan clear the dust from door and window tops, and dust the mouldings with the whisk broom. Brush the walls, and dust the base-boards with the broom, then sweep the floor with light strokes without flourishing to raise a dust, and instead of stabbing at the skirting of the wall, run your broom along it, which will clean all the dust out, a point which makes much of the difference between well-swept rooms and careless ones. Use the whisk in the angles of the floor and mouldings, where the dust and fluff by long lying have felted together, and a sharp skewer or steel pick will perhaps be the only thing to take them out. You will find dust caked in corners, where Katy washed the floor without thorough sweeping or thorough rinsing after. Around the carelessly kept threshold are likely to be collections of this kind which must be scraped out with an old dull knife, kept for cleaning. Sweep with windows open if the weather will allow, and when through, shake the door mat, brush out the entry and porch, and go out of doors while the dust settles, to give your lungs fresh air. Sweeping is the best exercise for chest and arms. English ladies of rank wishing fine forms

as well as pretty faces have taken to brooms and bed making to develop their arms and shoulders.

Time yourself to do this sweeping in fifteen minutes, then sit down for a five minutes' rest. You can train yourself to do all the work of a house without fatigue, by taking short rests at intervals. So take the shaker chair while we talk about dust and what it is made of.

House dust is minute particles of soil from the streets, brought in by the feet, or sifted through door and window casings, fine ashes from the fire, mixed with minute scales of skin from our bodies, and fluff from clothing and carpets. These particles, nearly invisible themselves, collect in such amount that they soon show in an unswept room, in the locks of lint which gather under tables, along walls, and undisturbed places. This waste goes on day and night, grinding of dust from roads, wear of clothes and carpets, fine dust flying from fires and atoms from human bodies. It irritates the lungs to breathe; ever so little damp begins a ferment in it, poisoning the air, and the only safe way to dispose of it is to sweep it up and burn it. Don't throw sweepings about the yards or vaults, but burn them instantly, or if that is not convenient, keep them in a barrel to burn the first chance. This grime on the paint left by Katy's careless washing is the sediment of dust in the water and dust settled in the steam of cooking, which if not often aired and washed, leaves the dingy look of frowsy kitchens.

Begin to wash doors and base-boards and you will see the annoyance dust harbors. In the dusty mouldings of doors and windows run the dust-lice, which gnaw books, paint and wood, and are ready to fall into food. Smeary paint invites that ugly moth, which delights in nothing so much as a greasy spot in a warm room, and which will lay its eggs next in the dining-room carpet. In that dusty corner behind the woodbox, a venturous ant has made her nest, and some July morning you will be surprised by her emigrant family in the store room, especially if spilt sugar and meal are left to tempt them there. Under the sink, in dampness and grease, water beetles and roaches increase like wharf rats. All these and more in swarms I have found in the melancholy process of clearing after a kitchen girl who "could not be at the trouble" of keeping things entirely clean. These insects thrive on refuse and they cannot be regarded as safe or agreeable things in a kitchen, running over food and leaving corners offensive with their traces.

After you have swept and dusted everything by brushing it, begin cleaning. If you have a painted wall to wash, the best and easiest way is to close doors and windows, take the cover off a boiler of hot water on the fire, and leave the steam to settle in the room for ten minutes. Steam is penetrating, and it will soften the spots and soil so that nothing will be easier than to wash, rinse and wipe the wall yard by yard. Steaming leaves doors and windows easy to



clean, but to have paint look clear and bright, it must be rinsed with clean water, and wiped quickly dry. Don't take a pailful and scrub with it till it thickens with dust, but use a large tin basin, and change the rinsing water as often as it grows cloudy, and as the wiping cloths grow damp, rinse and dry them by the fire or in the sun, while you use fresh ones. If the paint is soiled with finger-marks, rub with mineral soap, remembering it is not the paint you want to get rid of, but the soil. Or, pour two tablespoonfuls of ammonia into the basin of warm water and rinse well after it. Old paint, especially old grained paint, is brightened by using a tablespoonful of potash solution in a basin of water, swabbing the woodwork with it swiftly, and rinsing with cold clear water without wiping. Delicate paint is best cleaned with whiting on a moist flannel, wiping with a wet cloth and drying quickly. By using a swab to wet the paint a few minutes before you begin to clean it, scrubbing mouldings with a large brush or the whisk broom, always rubbing with the grain of the work, not across, rinsing without slop and keeping plenty of clean dry cloths to wipe with, you will not find the cleaning very dreadful business.

The paint done, wash the window frames, taking care to wet them all over to soak the dirt, scrubbing the top and lower edge with strong suds, scraping with a knife the ancient deposits of grime and flies, finishing with a wash of potash water to extract the soil. The soap, sand and potash are for the unpainted part of the sash and casings only, for each will ruin paint. And now comes the trying part of your work, to clear out the corners of each pane of sash, and the grooves of moulding. The steel nut picker comes in play here, followed by the whisk which will wash out corners better than anything else. Scrub round the window lock on the middle sash, clear all the dust from it with the pick, leave no crevice about your window that is not absolutely free from dust and smooth. Very likely a lazy painter has not dusted the corners of the sash perfectly before painting, and they look woolly: clear it with the pick. If there is paint on the glass, scour it off with mineral soap, or touch it with strong potash water, and then scour. Use no soap to wash glass, but rub greasy spots with whiting or ammonia, then rinse, drain and wipe with dry clean cotton cloths. Keep old pillow cases and skirts for this use, and for dusters. You can afford to take time and pains over such work, for it will never be troublesome again while your housekeeping lasts.

Now for scouring tables, chairs and shelves, all which in a kitchen should be unpainted, to clean more perfectly. Your tables with white pine top and chestnut frame, the chairs of varnished chestnut, the shelves of clear inch pine, should always after the old English standard of good housewives, be clean enough to show the grain of the wood as when first planed. To keep them so you must scour them after the good old fashion with soap and sand, for there is nothing

like sand to clean and smooth the grain of wood. Take out the drawers and wash them, for Katy has left finger-marks inside, and crumbs, till they are not fit to keep clean cloths and utensils in. Now the potash water comes in use. From the can chip out a teaspoonful, which dissolve in an iron kettle of boiling water, and you have a willing servant which will do all sorts of hard, disagreeable work for you. It is strong and effective, and you must use it with very great care, for a drop of this solution will take the color out of your dress, and eat holes in it; will take the paint off wood, remove grease from wood, iron, or stone like magic, kill bad smells, sweeten dark, damp corners, whiten dull floors, remove rust, brighten zinc, in short, I never can keep house without this trusty chemical. Never let your hands touch it, for it will wrinkle and make them sore. Apply it with a swab, and rinse the article on which it is used at once. Keep the kettleful of the solution hot to cleanse cooking utensils; one spoonful of this in a basin of water will be strong enough to wash paint or most woodwork with. Use it to take finger-marks from table-drawers; scour and rinse them and set to drain in the sun to sweeten, till every trace of damp has disappeared. Turn the table upside down and clean the soil and fly marks there. You will probably find spider-webs and eggs in that coigne of vantage, and a colony of cockroaches, to dislodge which, swab the cracks and joints well with hot strong potash, scrub and rinse, and when dry, apply plenty of kerosene with a feather, saturating all cracks. The smell soon disappears, but no insects will take a fancy to keep house there again.

Swab the zinc under the stove with potash to clean it, letting the solution stand a few moments before rinsing off. Next collect all jars, pans and cooking ware for a grand cleaning. They are not smooth to the touch, nor do they smell sweet to the practised senses of the true housekeeper. Washed in grimy dish-water, wiped on doubtful towels, left in an airless cupboard or pantry, they do not belong to our order of thorough neatness. There is a trace of sweetmeats in the apple-sauce crock, and a pasty rim in the yeast jar, while hot lard has been suffered to soak into a third. The tin pans have black seams from which the grease can be scraped with a pin, the sugar firkins are smeared outside, whatever they may be within, and the starch, sago and other nest-boxes are not nice to handle. Take the jars first: put each in the kettle of potash upside down for five minutes. Take out carefully into a large pan of clean hot soapsuds, wash with a dish mop, scour sticky spots, drain, wipe, and set where the sun will shine full into it out of doors or at an open window. In winter set over the hot stove to air. Not till this course of purifying is gone through after the reign of a careless servant is kitchen ware fit for handling.

The tins come next for a thorough washing and sunning, to be polished at leisure another day. Then the firkins are emptied, swabbed outside and around



the rim with hot potash, scoured with sand and soap, rinsed and set in the sun. The starch boxes the same. The pantry shelves if unpainted are cleaned with sand, first taking out grease spots with potash. The floor is washed; all spots of dried dough, flour and meal soaked and scraped off with that invaluable old knife. While the pantry dries with door and window wide open to air it, wash the rest of its contents, cleaning the flour bin or barrel of spots with a moist cloth and mineral soap without wetting it much and then wipe with a damp cloth. Wash all pegs and nails and hooks in the wall, swabbing them with a basin of hot potash, for they often become so crusted with fly-marks and greasy fingers, that they are not fit to hang clean things on. The flat-irons will be none the worse for a dip in potash to take any grease off, washing and drying them on the stove. Then put the potash in your largest kettle and boil the other

kettles, sauce-pans, frying and bakepans in the lye, ten minutes apiece, when you will find all the greasy crust on the outside scrape and scale off, and a little scouring with a brush and sand will leave all your "kitchen battery" smooth, innocent, and safe to touch, as even the menial things should be in your kitchen.

The old-fashioned story of the two maiden ladies whose kettles and frying-pans were so clean "you could get up from hemming a cambric handkerchief and rub your fingers on the bottom of each one without soiling the work when you came back," was always delightful to me, since I first heard it as a child. And though I never could bring my gridirons and saucepans to the same polish of neatness, still it has been a worthy model to aim after. As old "granther Hale" out in Tioga County used to say, "When I find anything too clean for me in this world, I expect to clear right out and go to a better one."

## HEALTH AND STRENGTH PAPERS.

BY PROF. D. A. SARGENT.

### VIII.

#### JUMPING AND LEAPING.



FIG. 1.

IF you put your hands under the arms of an active infant from six months to a year old, and then place its feet on the floor, it will not attempt to walk, as you might imagine, but will make a succession of springs, or jumps, much to its mother's terror and its own delight.

The jump, then, in point of development, may be said to precede the walk. In walking, you will remember that one foot touched the ground before the other one left it. It is not so in jumping. Here both feet leave the ground momentarily with a sudden spring, or bound.

In the standing jump, both feet leave the ground at the same time, while in the running jump one foot generally precedes the other.

To be a good jumper one must possess long muscular thighs, and well-developed calves. And in turn, jumping tends to develop these parts as well as many others. Let us try a few jumping movements, just for exercise.

First, lay aside your coat and vest, and prepare yourself as for free exercises and *home gymnastics*.

Now take a position with feet about six inches apart; bend the knees slightly, but keep the body straight, and jump into the air as high as possible, at the same time throwing the arms forward and upward. In landing, strike on the balls of the feet, and bend the knees as before. In order to make this exercise interesting, cover a round hoop with paper and suspend it about eighteen inches above your head and see if you can jump high enough to put your head through it. (See Fig. 1.)

Vary this exercise by trying to jump from the toes with the hands held at the sides, and the knees kept stiff. While in this position, jump to the right, then to the left. Now backward, then forward again, keeping the body and legs all the time perfectly straight, and getting no aid except from the feet.

After resting a few moments, try to jump so as to touch the chest with both knees. (See Fig. 2.)

Then jump so as to touch the thighs behind with both heels. (See Fig. 3.)

In the last two efforts, care should be taken not to do yourself injury by force of contact. Having practised these preliminary exercises every day for a month or so, you could expect to jump heights and distances with a fair prospect of success.



FIG. 2.



Let us try at first what is termed the Standing Broad Jump. Place your feet so that the toes will be just behind a line drawn on the ground or floor; swing the arms high above and back of the head, then bring them forward and downward until they are extended far behind the body, at the same time bending the knees and inclining the body forward.



FIG. 3.

Now, with a sudden spring straighten the legs, sweep the arms forcibly to the front, carrying the body headlong, then bring the legs up, and plant them as far forward as possible. Where the heels strike draw a line, and measure the distance covered. If you succeed in jumping eight feet it will be doing remarkably well for boys of your age.

Great assistance may be obtained by jumping with dumb-bells or weights, but it is better to practice jumping without them, as their use only tends to make you dependent upon them. You can also take the Standing Jump backward or sideways, but these two methods are not much practised.

Now let us try the Running High Jump. In order to make this exercise interesting, it is well to have some means of indicating the height cleared. Obtain two standards seven feet long and about two inches square at the bottom, tapering to one and one half inches square at the top. Bore holes through each standard one inch apart, and place the standards perpendicular in the ground to the depth of one foot, or on a movable platform. (See Fig. 4.) Put the standards seven feet apart, and stretch a cord from one to the other with a bag of sand attached to each end, and a slip of paper to the centre.

The cord may be held at the desired height, by means of iron or wooden pins put through the holes. If you are going to jump out of doors, have the ground spaded up at the place where you intend to land, to prevent spraining your ankles, or injuring yourself from the shock in coming down. If you jump in doors have a mattress to land upon for the same reason.

In the Running High Jump, a run of twenty to

thirty feet is sufficient; but this must be taken with energy and precision.

Run with a fixed number of steps directly towards the object which at first better be placed about thirty inches high. When within three feet of it, suddenly stop and bound into the air, lifting the knees towards the chest, and throwing the arms vigorously upward. If you lift your feet high enough, the force acquired by the run will carry you over the cord.

In beginning to jump it makes but little difference which foot you start from. It is better to practice at a low height for a long time at first, so as to form your style, and learn to get perfect command of your body. After a while you can begin to increase the height with a fair prospect of making a good record.

In practising the Running Long Jump, or leap, as it might properly be called, a longer and swifter run is necessary. In fact a good long-distance jumper must necessarily be a fast runner.

In order to protect the feet, and prevent injury from the jar, it is well to take the same precaution as in preparing for the high jump.

Having settled upon the mark from which you intend to jump, first practice running at this for a certain distance, say fifty feet, regulating your paces so that the foot from which you start to jump will come just at the line. In this way you will learn to save from three to ten inches, which will count on your jump. After getting command of your step you can begin to jump with greater energy, as with the Running High Jump a great deal depends upon the throw of the arms. Get a powerful run, then jump into the air, throwing the arms forcibly forward, just before landing shoot the feet to the front and bring the arms back of the body. This jump can be practised to advantage over a narrow brook or stream where the opposite bank is sloping and sandy.

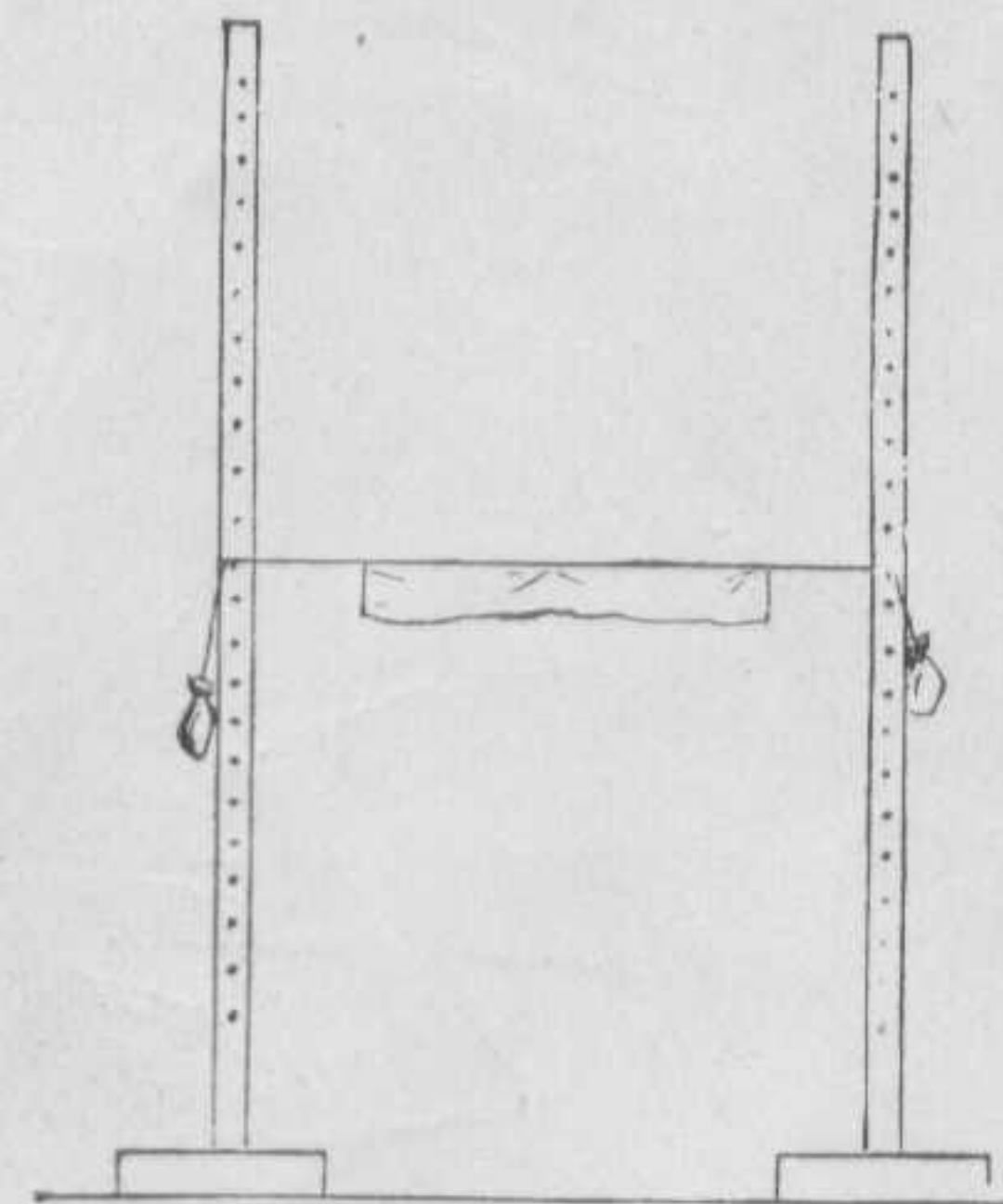


FIG. 4.

## DAYS AND NIGHTS IN THE TROPICS.

BY FELIX L. OSWALD.

### CHAPTER II. (*Continued.*)

#### IN AN INDIAN CAMP.

WE promised to be very careful in the choice of our expressions, and walked off with our prize,

followed by a troop of copper-brown youngsters who by this time had got rid of their shyness, and played around us like a swarm of mischievous schoolboys. Some of them were first-rate archers; our mule-boy tossed up his hat, and promised it to the best marksman, and they came so near hitting it that



did he not care to repeat the experiment. We had hardly got back to the main road, when the spearman came running down the lane in great haste.

"Our wizard has just come back," said he, as soon as he had recovered his breath, "and the children have told him all about it — about the monkey. He says the spirit of great chief will be terribly angry, will frighten us, and shout and rage around all night."



SOME OF THEM WERE FIRST-RATE ARCHERS.

"Sorry to hear it," said the captain; "but what can we do about it?"

"The spirit of great king has to be pacified," said the Indian; "much tobacco and candy; very much tobacco, or he will shout at midnight — shout till morning."

"Well, he has to shout then," said the captain; "we have no tobacco for him. But here" — offering him a handful of stick candy — "if this will cure him, you may take it along."

The Indian tried a piece.

"Yes, that will do," said he confidently; "spirit pacified; great dance now," and ran back at the top of his speed.

### CHAPTER III.

#### THE CAPUCHIN MONKEYS.

We cooked our dinner at the river-shore, and from twelve to two o'clock the woods above us were as silent as our northern pine forests at midnight; the glare of the noontide sun had hushed every sound except the ripple of the river-current and the occasional scream of a couple of capuchin monkeys who seemed to have a scrimmage in a neighboring thicket. I had spread my shawl in the shade of an overhanging rock and had a nap of half an hour or so, when the captain put his hand on my shoulder.

"There's a chance for a good catch," said he; "you remember the monkeys we heard a while ago? The boys tell me they are at bay in the top of a tree; there's a panther or something after them."

"Where is that tree, Benny?" I asked when we had repacked our mules.

"I'll show," said he; "it's not far from the main road; they have never left it since we first heard them. Please go slow, now," he whispered when we approached the place. "I have never seen the like in my life."

It was, indeed, a curious sight. In the top of a mango-tree two capuchin monkeys had taken refuge at the end of the highest branch, and from a worse enemy than a panther: a large tree-boia had coiled itself around the stem of the mango and approached the top by gradually extending the upper part of its body while the lower coils were braced in readiness for a sudden spring. The poor monkeys seemed to be at their wit's end; the smaller of them crouched behind his comrade who

every now and then uttered a plaintive cry, but neither of them made the least visible motion.

"They must be bewitched or charmed," whispered our guide.

But there was no witchcraft about it; the boa had evidently cornered them by clever manœuvring, and with all the apparent sluggishness of her movements she advanced in a way that continually improved her advantage and enabled her to cut off the retreat of her victims.

"Now watch; she's going to spring," whispered Juan.

"Oh, please let us try and save the poor monkeys," said Benny.



"Yes; let's keep our guns ready," I replied, "but keep still, I want to see the end of this."

The boa had advanced to within three yards of the top branch, but she wanted to make sure of her prey. After extending a few of her middle coils, she bent her head far back and slowly lengthened the disengaged part of her body till it commanded a range of about ten feet in circumference, in case the monkeys should, after all, try a leap for life.

"Now is our time," said the captain; "she is getting ready."

Close behind the tree was a rock that enabled us to climb up high enough to rest our guns against the lower branches, for we wished to preserve the skin of the boa and tried to hit her head without damaging the rest of her body. The guide took one of my shot guns and we quickly clambered up to the top of the rock, for I still hoped to save the monkeys in the nick of time; but we had waited too long. The capuchins had retreated to the very end of the branch and seemed half-inclined to risk a leap, but they still hesitated, and one of them had just uttered its whimpering cry, when all at once the boa threw herself forward with shotlike suddenness, and in the same moment almost her coils had encircled the bodies of the two monkeys. Bracing herself back she wrenched them from their branch, and her crushing folds had already stifled their shrieks, when at last the broadside of her head became visible for a moment, and our three shots went off together.

"Look out, down there!" shouted the captain, and with a howl that would have done credit to an African savage our black cook sprang out of the way and rushed into the next bushes. The poor man had cause to be scared: the boa, monkeys and all, had plunged down within two yards of his feet, and, without releasing her captives, the dying monster struck out left and right with an energy that made the leaves fly in every direction. The boa seemed bent on mischief; every wriggle jerked her forward, and we saw to our dismay that she was moving straight in the direction of a bush where we had hitched our mules. One of the long-ears, however, was able to take care of himself. The kitchen mule, as we called the one that carried our provision bags, had kept his eye on the boa, and the moment she came within reach, his heels shot out with a force that sent her sprawling against the next tree and seemed to have crushed whatever fractions of vitality she had left. Her struggles ceased, and the two monkeys now disengaged themselves from her coils and crawled toward the foot of our rock, though for one of them, deliverance had come too late; he dragged his hind legs as if the boa had broken his backbone.

"Hurrah for my mule!" shouted Juan who had hid himself behind a tree, and our cook, too, now advanced with a big club, but he had hardly left his hiding-place when the boa revived, and once more the lashing of her tail filled the air with a whirl of flying leaves. In his endeavor to avoid her blows

the poor darkey had to jump up and down like a boy playing at skip-rope, while the crippled monkeys yelled away in wild alarm and tried in vain to climb to the top of our rock. Their cries were answered by the screams of our Satan-monkey, who had either realized the danger of his relatives or was getting uneasy about his own safety, for the boa was again making straight for the mule-bush and the pack-mule tugged wildly at his halter.

"I shouldn't like to damage her skin if I can help it," said the captain, "but we have to finish this business somehow or other."

"Hold on! I'll settle her," said the guide, and snatching up his axe, he overtook the boa just before she had reached the mules, and with a single stroke, almost severed the head from her body. In the next moment he had to save himself by a quick back spring, but there was no need of a second blow; with a convulsive tremor the boa turned over on her side, and then lay still; and before the hide had



THE CAPUCHINS' ENEMY.

"stiffened," as taxidermists call it, the guide and Juan had tied her to a bush and skinned her off, while the cook was watching them from behind a tree.

"She won't bother you any more," laughed the guide; "come on and help us stretch this skin."

But the darkey shook his head. "You may try that if you like," said he, "but she won't fool me again; I don't believe she is half-dead yet."

(TO BE CONTINUED.)



## WHAT TO DO ABOUT IT.

A Boy. 1. "What makes so many white spots on my finger nails? I never saw any one with so many." Impurity and poorness of blood lead to unequal deposits of the horny substance of the nail, which grows cloudy and chalky in spots. You need to pay attention to diet, bathing often and rub yourself briskly with a coarse towel before going to bed. I dare say a knowing old lady would dose you with dandelion and herb extracts for clearing the blood. A very old cure for spots on the nails, "liver spots," or those brown patches on the face some people call moth, together with other disorders of the blood and digestion, was to eat raw onions with salt. The practice was sensible, as the onion contains powerful medicinal qualities. An old couplet, older than Shakespeare, advises us to —

Eat leeks in Lent and raisins in May,  
And all the year after physicians may play.

If you try the remedy, like an investigating boy, your presence and the effect of the medicine will be improved by always taking a teaspoonful of powdered charcoal mixed in water after each dose.

2. "Which one of Sir Walter Scott's novels is considered next best to *Ivanhoe*?" *Waverley* used to hold that place, but *Kenilworth* has more forcible and picturesque narration.

3. "What is a good book on Natural Philosophy for me (just to read), with some good experiments in it?" *Worthington's Elementary Course of Practical Physics*.

Now this is such a letter as I like to answer. It is neatly written in a schoolboy hand, is well and simply expressed, and asks for information on matters which show the writer notices and thinks about what he sees. Send me more such letters.

DOT. "When and where was the mistletoe bough first used, and how did it come to be used as it is?" You will have to go very far back in antiquity to find the origin of the superstitions of the mistletoe. With the Persians it was a sacred plant of the Moon-goddess, Astarte, and its honors probably were old as those of the groves of oaks where sacrifices were made. The Romans held it in veneration as the plant of Proserpine who guided Eneas to the tree where grew "the goddess-bough different from the tree itself," sacred to the infernal Juno. In the Norse mythology it was the plant of Freya, the northern Venus, and with its roots the malignant Lok slew the Bright god Balder, to whom

All things in earth and air  
Bound were by magic spell  
Never to do him harm,  
Even the plants and stones,  
All, save the mistletoe,  
The sacred mistletoe.

M. C. "Could you tell me how to take care of goldfishes in a glass globe? We have had a good many but most of them have died." Goldfish need plenty of air and should be kept in a wide-mouthed globe not more than three fourths full of water. They need partial shade, and must be kept out of the sun and away from the fire. The water needs changing once in a week or two, and should have the chill taken off. Do not feed the fish with crumbs of bread as it makes the water sour. Will not readers who have kept fish successfully give their experience in the WIDE AWAKE Post-office?

M. H. S. "Does the bird Nuthatch change in color in the spring? There are birds here very like them except color; the male is a bright orange on wings and breast as the oriole, and the female breast striped with black and yellow." The red-breasted Nuthatch has a deep orange color and is found through the whole of North America.

2. "Is there some good book about birds not so expensive as Audubon's?" *Nuttall's Manual of Ornithology* is the best small book, and *Baird's History of North American Birds* will please you best among the large works.

JESSAMINE. 1. "How much would it cost to build one of those modern tents described in the January and February numbers?" That depends on the cost of lumber in your town, and the size you want to build. Any carpenter will tell you how much matched flooring and 2x6 scantling it will take, when you give the dimensions, and you can inquire the price at the lumber yard.

2. "Which is the most beautiful flower? I don't mean the flower which is the rage, but the handsomest? Some people say the sunflower. I don't." The rose is agreed the queen of flowers, for beauty, fragrance and variety. You are quite right in not wishing to give the first place to the sunflower. The rose always has been and probably always will be the favorite flower of the world.

KATE. "What do you think the best things to collect for a scrapbook?" Rather a wide question, Kate, to which I answer, the items most interesting to your own taste. Begin with what you have, say a picture of some town, person, or building of note. Then gather anything you see about the subject, and keep your clippings in a large envelope or drawer by themselves. Don't be in a hurry to fill your scrapbook, but collect five or six weeks or months before arranging the scraps. You will find much that you don't care for on second reading. Collect all the paragraphs about birds, all about dogs, all the bright jokes and short stories of adventure you find for three months, and tell us through the Post-office how you succeed.

THE WISE BLACKBIRD.



# C. Y. F. R. U. COURSE.

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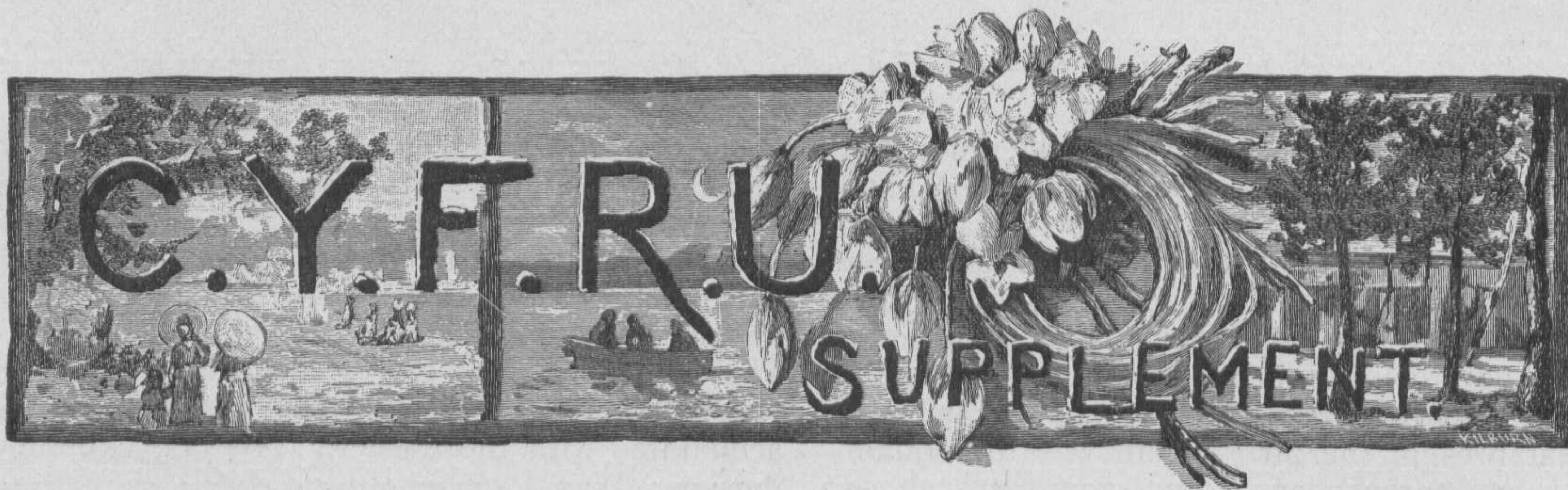


# WIDE AWAKE



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## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### IX.

GEORGE MACDONALD.

IT is a pleasure to me to write about George MacDonald; and I should like to thank him for Robert Falconer and Gibbie, and Cosmo and his father, and Ranald and his father; for quaint Poppie and Maggie, and Mr. Spelt of Guild Court; for Kirsty the Highland servant; for bonny Annie Anderson; for Aggie and Grizzie who stood so stanchly by the fortunes of the Warlocks; for Janet, the shepherd's wife, away up on Glashgar; for Shargar and Turkey and Donal; for many more, but these especially. For the pictures of life among the common people; and Scotch scenery; and even for all the Scotch talk, hard to understand, but rich and strong and meaningful.

I should like to ask him to keep on writing more books like *Alec Forbes*, *Robert Falconer*, *Sir Gibbie*, *Ranald Bannerman*, and *Warlock o' Glenwarlock*. They are full of that Scotch talk, I know (*patois*, he sometimes calls it), and I know that many readers don't like it, and that critics complain and wish he would stick to English, but it seems to me that his Scotch books are his best, and that he thinks so himself. He puts a power into them that is wanting in the others. There is life-blood pulsing all through them. They are warm with the warmth of it. They touch us tenderly because they are fresh with his own experiences and love. How he must have enjoyed writing them!

As for that Scotch, you must use yourself to it. With the help he now and then throws in at a peculiarly unmanageable word, and recourse to a glossary perhaps, when the case is desperate, exercising your own perception meanwhile, you will soon get the run of it. And then—and then—what depths, what sweetness possible to speech will be made known to you. A rough language, I grant; rough as a burr it

often is, but a burr that is full of meat. A wild language like the landscape of Scotland: high, bleak moorlands and barren mountains having black tarns among them and deep defiles; harsh and austere, but with blessed touches of tenderness too, in such sunny glens and wimpling burns, such grace of white birch and balsam of fir-woods, such banks and braes, bonny with heather bloom, with harebells and the *gowans* fine. It is like all that; rude, but with such brooding words of fondness; words, as MacDonald says, from the sources of laughter and tears; that vernacular which he says, too, it is easier to speak the truth in, "for it lies nearer the simple realities than a more conventional speech." It has all the straightforwardness and hearth-warmth in it that we must go among a primitive people to find, who speak as children do. By and by there will be none of them left.

And pray why should not he write in Scotch? It is the language he was born to. He is a Scot of the Scots. The MacDonalds were one of the ancient clans. A MacDonald away back was "King of the Isles," having his home and holding his royal court on Islay, one of the Inner Hebrides, just off the coast of Argyleshire. It probably belongs to the Argyle estates now. A note to Scott's poem, *The Lord of the Isles*, has something about it.

The author's birthplace was Hantly (the year 1824), a market town, thirty miles or more above Aberdeen, up in one of the northeastern shires of Scotland. And now you understand why he has written so much about snow storms, and why there is so much more winter than summer in those books; why people are always being snowed in, or nearly getting lost in a sudden storm, or "boring" their way through one—that is a word he uses, and a capital one it is—and why his boys so delight in the white world, burying themselves in snow, plunging through it, making caves in it to be illuminated o' nights.

His stories are full of local color. It was a market town where Robert was born, and a market town,



where Alec went to school and had all those boy experiences. The first was named Rothieden, but I think we are justified in saying Hantly instead; and so we can see what George MacDonald's birthplace was like. Houses built of cold, gray stone (he says a great deal about those cold, gray houses), the better ones with roofs of slate, but the poorer had thatch; and on the frosty mornings there was the smell of many peat fires in the air. There was the square, thronged on market days, the tradesman's shops, with the front doors, all the upper half made of little panes of glass; and at nightfall the owners used to

Outside the town spread the moorlands, high, bleak and barren, with stacks of peat scattered over them, and the black pools showing where the peat had been dug. Those wastes of moor, and the high places, and the lovely meadows along so many streams, are just where we like to be taken, and where his boys and girls were fond of going. We become acquainted with the flowers; intimately acquainted with the daisies. His books bloom with daisies. Was I once told, or did I imagine it, that he is so fond of those flowers, the *gowans*, in Scotch, "wie, modest, crimson-tipped," as Burns has it, that



GEORGE MACDONALD

come outside and chat with the neighbors. There seemed to be much friendliness, and we are soon on good terms with the tailor, the wheelwright, the cobbler, the baker, the schoolmaster, and all the boys and girls of the town, and know the back wynds, and those old gossips like Luckie Lapp, and the grannies, and blind Tibbie.

Huntly (and Rothieden) had manufacturies, and Mr. MacDonald's father was part proprietor of some mills; therefore, as real as a photograph are those pages about the disused mills and the bleaching grounds down by the river where the webs of linen were stretched out to whiten. You will find them in the story of Robert, and also of Alec.

he used to go out early in the morning, as Burns did, and lie down in the grass to see them open, "leaning on my elbow and my side," as Chaucer says, who used to do the same thing? There is something pretty about them in his story *At the Back of the North Wind*, when Diamond's mother read the no-sense verses that run on and on so without any capital letters or commas, or any punctuation whatever:

and so with the daisies  
the little white praises  
they grow and they blow  
and they spread out their crown  
and they praise the sun



and when he goes down  
their praising is done  
and they fold up their crown  
and they sleep every one  
till over the plain  
he's shining amain  
and they're at it again

From Hantly Mr. MacDonald went up to Aberdeen to the university, just as Robert did; and probably he was one of the young students who walked about the quadrangles and under the arcades, each with his *Ainsworth's Dictionary* under his arm, and for one of their tasks turned a portion of Robertson's *History of Scotland* into Latin.

And there perhaps the Scotch part of his life was nearly ended, but he had it all in his brain and being; and when he began to write he re-produced what was so dear to him. So we have that homely, shrewd people, God-fearing and sound of mind, where even the boys and girls read Milton, strong enough for that meat for men, who knew their Bibles and loved old songs, and believed in kelpies and bogies and the second sight, and dreamed dreams and told them, and with all that was rugged in their lives, had a poetic and imaginative side. Such charity too! Read how Grizzie of Castle Warlock went, when the meal-bin was empty, with her sack from house to house, and in every house a handful of oatmeal was put in, whether of rich or poor, for such was the custom of the country.

Such reverence and filial care too! Read how Annie tended old blind Tibbie, and of Turkey's kindness to his mother, and that wonderful, beautiful love between Cosmo and his father. Such defending of the helpless, and care of the weak, or as the Scotch say of innocent ones, those who are "not all there." Read how Ranald had Kirsty and Turkey, Annie had Alec to fight her battles, and Shargar had Robert. Such fidelity to the fortunes of the family in the old servants; and such types of old-fashioned piety. Nothing so sweet has been written for many a day as the chapters in *Sir Gibbie*, about Janet up on Glashgar; it ought to make any one better to read them.

That ought to be the case, indeed, with all his books. He has such a near and personal sense of the fatherhood of God; his religion is to bring people nearer the Father through love, and make life "a truth and a gladness." In the Scotch stories this is taught chiefly through the lives of his characters, and the reasoning out of things and arguing by such stout old worthies as Thomas Crann, the mason, in *Alec Forbes*, to whom little Annie ran for help when she was worrying about whether she was "ane o' the elec'" (one of the elect) or not, and told him about her praying: "I tried hard last nicht, but the rottans (rats) war ower mony for me." Or, again in those lovely talks such as Cosmo and his father had together, which made the heavenly kingdom seem no farther off than the next room.

But in his novels in English there is less story and more preaching; a great amount of direct teaching

and many short sermons of a simple kind. He has quite a fancy for connecting two or more books by having some of the same characters in each. This is the case with *Thomas Wingfold, Curate*, and *Paul Faber, Surgeon*, which are not so suitable for young people as most of the others. Three which belong together are *Annals of a Quiet Neighborhood*, *Seaboard Parish*, and *The Vicar's Daughter*, and in the second and third is something of the MacDonald family life. He had made choice of the ministry as his calling, first as a preacher of the "Independents," but later he became connected with the Church of England. In those three you have the vicar in his own parish, and he says of his place of writing:

I am sitting again in the little octagonal room which I have made my study because I like it best. It is rather a shame, for my books cover over every foot of the old oak paneling.

In 1867 Charlotte Cushman was staying at a little fishing village there, and she wrote to a friend:

"One day we saw MacDonald, who is living in a cottage here, with hosts of children, cross over the breakwater when the tide was just beginning to creep over it. He carried one baby in his arms, led another by the hand, and a third toddler held on by the second. We watched the procession breathlessly as you may imagine. They arrived safely at the other end where the breakwater ends in a high mass of rock. Now the question arose whether they would attempt the return, for every moment the tide washed heavier over and between the huge stones of the breakwater; presently, back they came, almost blinded by the spray and foam, but full of courage and pluck, not one of them thinking or betraying the least sign of fear. The baby crowed aloud with delight. MacDonald came to see me afterwards. 'It does them good,' he said, 'they like it.'"

His writings are very unequal in merit, but through all there is the same high purpose. He sets you to thinking; starts new lines of thought. It is with him always "the *being* that is the precious thing;" it is always doing one's duty steadfastly. In his story of the civil wars, *St. George and St. Michael*, Dorothy stands by her principles: in *Guild Court*, that admirable London story, Lucy chooses the right course; in *Mary Marston*, the noble young shopwoman puts herself into a disagreeable position to fulfil her missionary work. Some of his boys do things they are ashamed of and sorry for, but they can't lie about it. There are good works and lovely lives; and the way is pointed out how all lives may be made lovely, and how all may become nearer to the New Testament spirit.

You cannot hurry through his books; he is never in a hurry; and you must take them leisurely, under the trees in summer, by the fireside in winter; and willing or not, you can hardly fail to be helped by them.

While Mr. MacDonald and his wife were in America, about ten years ago, she told some one that it



had been reported that she and her husband and *thirteen* children were guests of Mr. Fields. The number of young MacDonalds then living was eleven; and the way the two extra ones were accounted for was in this wise: somebody asked the father how many children he had, to which he answered, "The number is on the wrong side of twelve."

Several years ago Mrs. MacDonald arranged a part of *Pilgrim's Progress* for a drama to be acted by herself and children, and sometimes Mr. MacDonald himself takes the part of Christian. It has ever since been in great request when the family are in England; and as they represent it, is wonderfully beautiful. A person who saw it describes the scene and the dresses; the room decorated with "pieces of art needlework" and rare plants and flowers, palms, ferns and lovely fragrant things; Mrs. MacDonald in a "robe of creamy coffee color, bound around the waist by a scarlet girdle," in which was a bunch of daffodils, a long white veil over her head; the daughters who personated Piety and Charity, in similar robes, with a scarlet fillet around the head; the children all attired with quaint simplicity; and the old, world-famous parable was acted with such reverence and feeling that the lookers-on cried like children, men and all.

The MacDonald young folks have unusual histrionic talent, and all act, and are trained to their several parts. I once read that there was first a girl and then a boy in the family, and in their performance each girl had charge of the boy next younger; and that a photograph taken of the group of eleven showed "one head rising above another like a flight of steps."

The novelist depicts in his books the most happy relations in the family. For pure enjoyment of what seems a real life actually lived by a boy, I should like to call attention to *Ranald Bannerman's Boyhood*, which it is a genuine treat to read; simple enough for a child, and good for anybody. The childhood of Ranald, when his mother died and his father, the minister, was so cast down, makes one think of Dr. John Brown and his father, as told in one of the volumes of *Spare Hours*. What a pleasant picture is this:

In the cold winter nights he would come into the room where I and my two younger brothers slept — the nursery it was — and sitting down with Tom by his side before the fire that burned bright in the frosty air, would open the great family Bible on the table, turn his face toward the two beds where we three lay wide awake, and tell us story after story out of the Old Testament, . . . sometimes turning the bare facts into an expanded and illustrated narrative of his own, which, in Shakespearean fashion, he presented after the modes and ways of our own country and time. I shall never forget Joseph in Egypt hearing the pattering of the asses' hoofs in the street, and throwing up the window, and looking out, and seeing all his own brothers coming riding toward him . . . sometimes I passed into the land of sleep with his voice in my ears and his love in my heart.

Mr. MacDonald, who has had trouble with his lungs from his youth, was years ago obliged to give up regular preaching, and as the climate of England is hardly genial enough for him, the family lately have lived much of the time in the Riviera, which is the name for a part of the south of France and Italy on the Mediterranean coast. He is tall, of a fine figure and majestic presence, wears his hair parted in the middle, and has a handsome, striking face with a grave but sweet expression; he speaks with a Scottish accent, and in the pulpit is all absorbed in his theme, earnest and fervent. He preaches now and then, but most of his time is spent in literary work, which was taken up in the first place as a recreation when his health failed. It has been stated that much of his writing has been done in bed. He is a man who everywhere makes friends, and he has thousands who have never seen his face, but who have been won to him by his books. In many points, chiefly in the spirit of godliness and love of humanity which pervade his writings, you will be strongly reminded of that other clergyman, essayist and lecturer, novelist and poet, and great-hearted man, Charles Kingsley.

NOTE.—If I was to make a selection for young persons, it would perhaps be in this order: *Ranald Bannerman's Boyhood*, *Warlock o' Glenwarlock*, *Alec Forbes*, *Robert Falconer*, *Sir Gibbie*, *Guild Court*, *St. George and St. Michael*, *Annals of a Quiet Neighborhood*, *The Seaboard Parish*, *The Vicar's Daughter*, *Malcom*, *The Marquis of Lossie*, *Mary Marston*. There are several others; and there are particularly the fairy stories: *At the Back of the North Wind*, and *The Princess and the Goblin*, with *The Princess and the Curdie* and *A Double Story* to go with it.

## THROUGH A MICROSCOPE.

BY MARY TREAT.

### IX.

#### THE UTRICULARIA.

IT seems strange that innocent-looking plants should capture and kill animals; but this is

really what the Bladderworts (*Utricularia*) are all the time doing. They grow in ponds and swamps, some species in deep, still water, others in shallow ponds.

Fig. 1 shows a portion of the stem of *Utricularia clandestina*, natural size. The little bladders are so



nearly transparent, that on bringing them under the microscope, or even under a good lens, you can see the numerous creatures that they have captured, some partly consumed, others still alive.

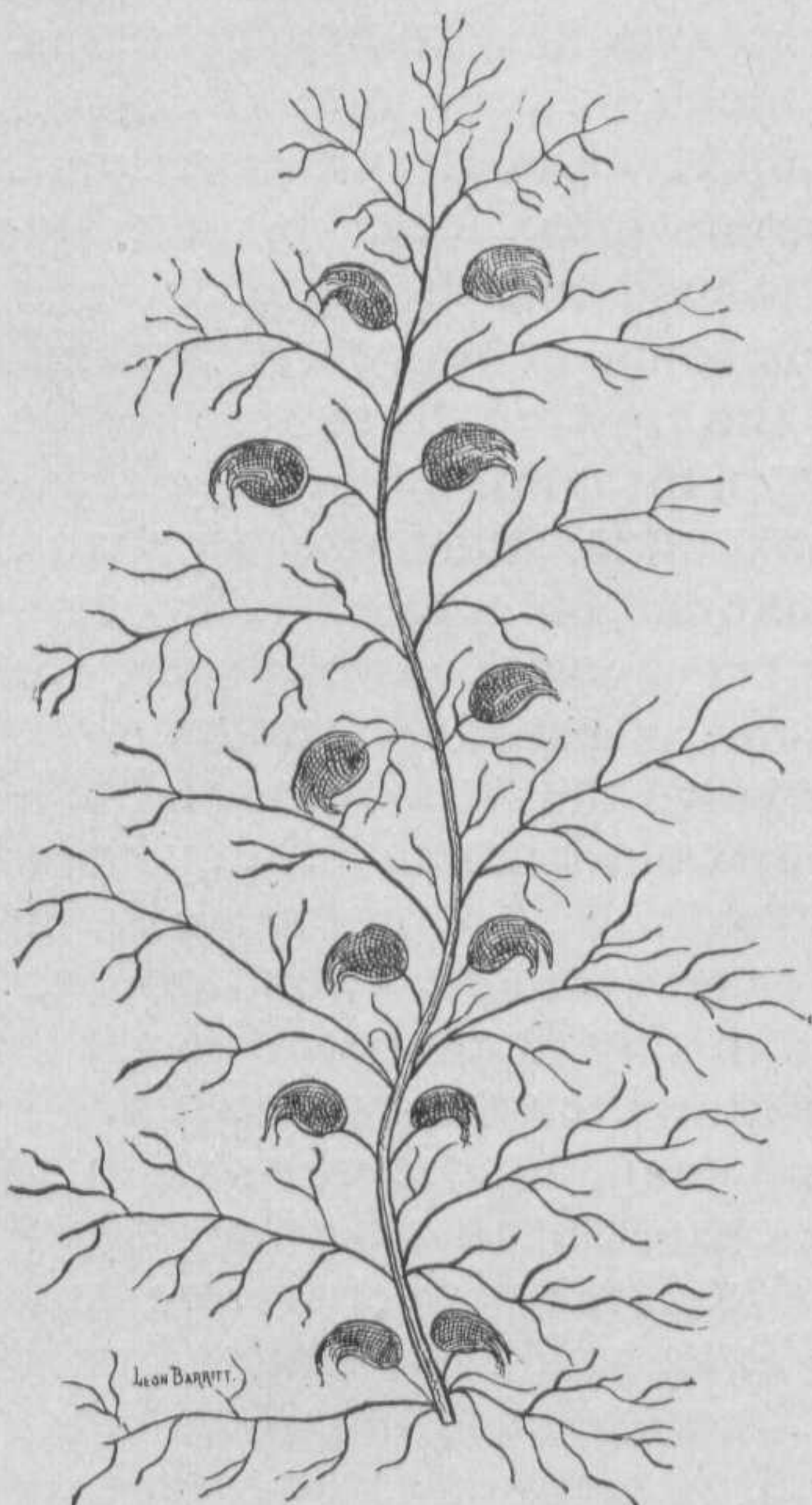


FIG. 1. PORTION OF A STEM OF UTRICULARIA CLANDESTINA; NATURAL SIZE.

creatures that come within their grasp makes them appear, even more than they look, like wicked animals.

I have found almost every swimming animalculæ with which I am acquainted, caught in these vegetable traps; and when caught they never escape. Their entrance is easy enough; there is a sensitive valve at the mouth of the bladder, which, if they touch it, flies open and draws them in as quick as a flash. These downward-opening bladders not only entrap animalculæ, but, more wonderful still, the strong larvæ of insects. The larvæ most frequently caught are those of the mosquito and chironomus. Often the mosquito is caught tail first — the entire body inclosed and the head left sticking out. It always looks as if the victim might walk or wriggle out, but it never does; and you may be sure that it never backed in there of its own accord.

You all know how the mosquito larva wriggles in the water, and is known by the common name of "wiggler," or sometimes inaccurately, "wiggler." Now just as sure as the tail of this wiggler strikes the mouth of the bladder, just so sure is he caught — drawn in by some unknown power quicker than you can speak.

There is yet much to learn about these curious plants. How it is that the valve or trap can so firmly hold these strong larvæ is still a mystery. I have seen a mosquito larva caught by the head when the

The bladders on these curious plants remind one of some of the *Entomostreacans* which Mr. Wells described in his fourth paper. Look at *Chydorus sphericus* for instance, and then at the magnified bladder (Fig. 2) in this article. The branched horns at the mouth or entrance have very much the appearance of the antennæ of some of the minute animals, and the stem when it is attached to the main branch may be likened to a tail. But the way in which they capture and devour the pretty little

first joint of the body was too large to be admitted through the entrance of the bladder, and have patiently watched its frantic efforts to escape, but it was never released. The more it thrashed about, the tighter grew the fatal trap until death put an end to its struggles.

The chironomus larva is quite unlike that of the mosquito. The chironomus has brush-like feet which it can withdraw from sight — a sort of telescopic arrangement — or extend when it wishes to crawl along the plants, while the mosquito wriggles and swims.

The chironomus is caught more often even than the mosquito larva. At certain seasons of the year it is almost impossible to find a bladder without one or more of these victims entrapped.

They feed on the water plants, and seem to have a special liking for the long-branched antennæ which grow at the mouth of the bladders, and, all unconscious of the trap, on, on they go, their sickle-shaped jaws cutting the antennæ which they eat as they advance, until their heads reach the mouth of the bladder, when they heedlessly touch the valve and the trap is sprung and they are drawn within, never more to escape, but to be slowly devoured.

There is another interesting species of *Utricularia*, the *Purfurea*, quite different in many particulars from the first. It grows in deep, still water. The stems are long, sometimes two feet or more in length, and the branches radiate in every direction, so that one plant often covers quite a large surface of water. The flowering stems stand above the water, and each stem bears three or four very pretty violet purple flowers, and it blossoms nearly all summer.

The flowers are about half an inch broad and quite conspicuous. Most of the other species have yellow flowers.

There are no little thread-like leaves on this species, and the bladders are on the ends of the little branchlets, and they have no sharp-pointed antennæ as in the other species; but in their place is an elegant cluster of transparent glassy-like ornamental appendages. The ornaments are just above the entrance, and who knows but this is a contrivance set there to lure unwary creatures into the trap.

One of the most common little creatures that was caught in this trap, was the *Tardigrada*, or water bear. He looks like a tiny cub, but unlike his great namesake, he has eight legs, and he frequently slips out of his old skin and comes out in a new suit.

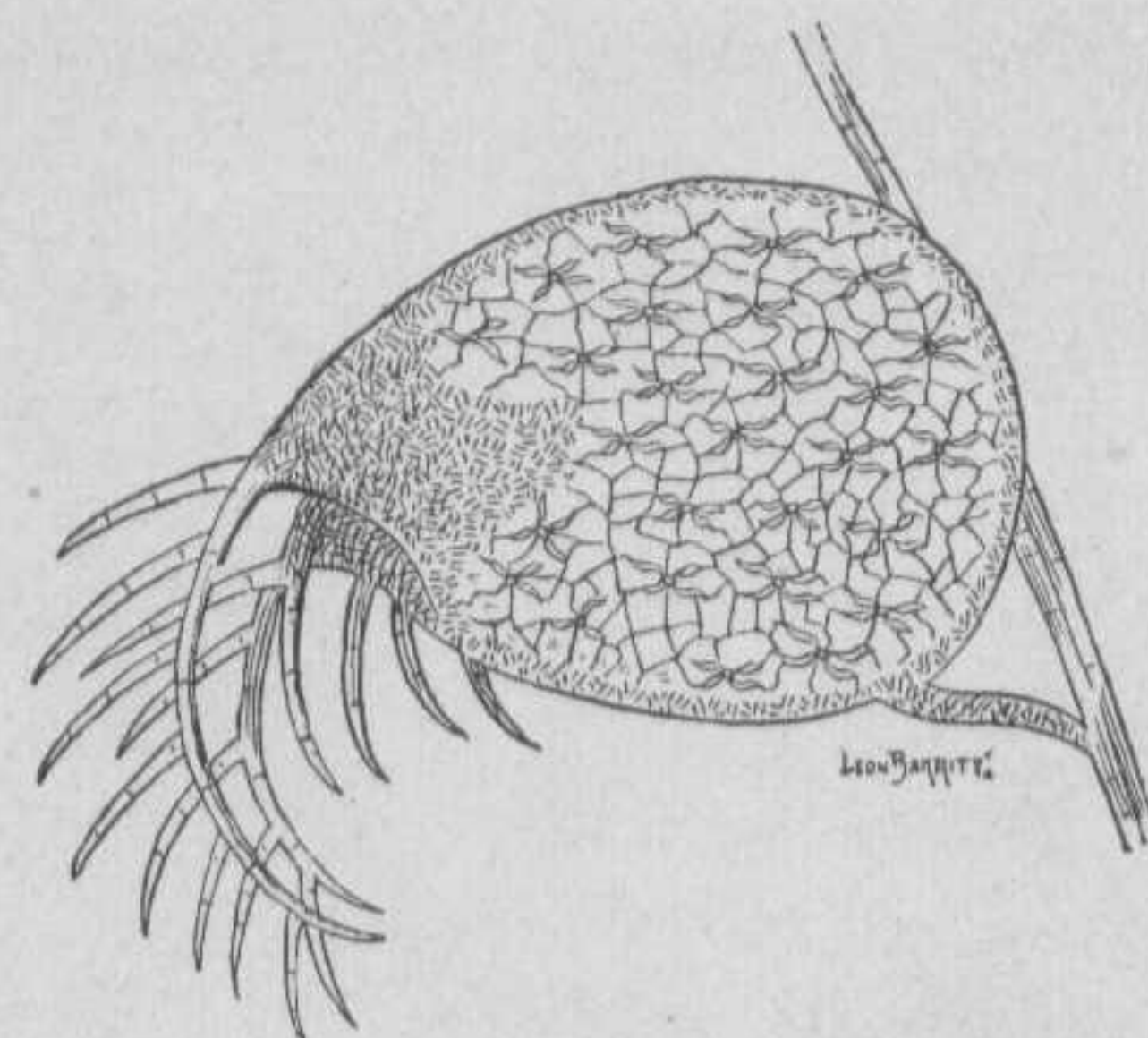


FIG. 2. BLADDER OF U. CLANDESTINA MAGNIFIED TWENTY DIAMETERS.



I often find them crawling in a forest of these plants, peering out of a thick jungle — now ascending a branch and out on a limb, holding fast with their long claws, and apparently looking around to see what they can find.

Now one seems to be attracted to this elegant glassy cluster of *Utricularia*. At all events he is soon pushing his head among the delicate stems, then stops

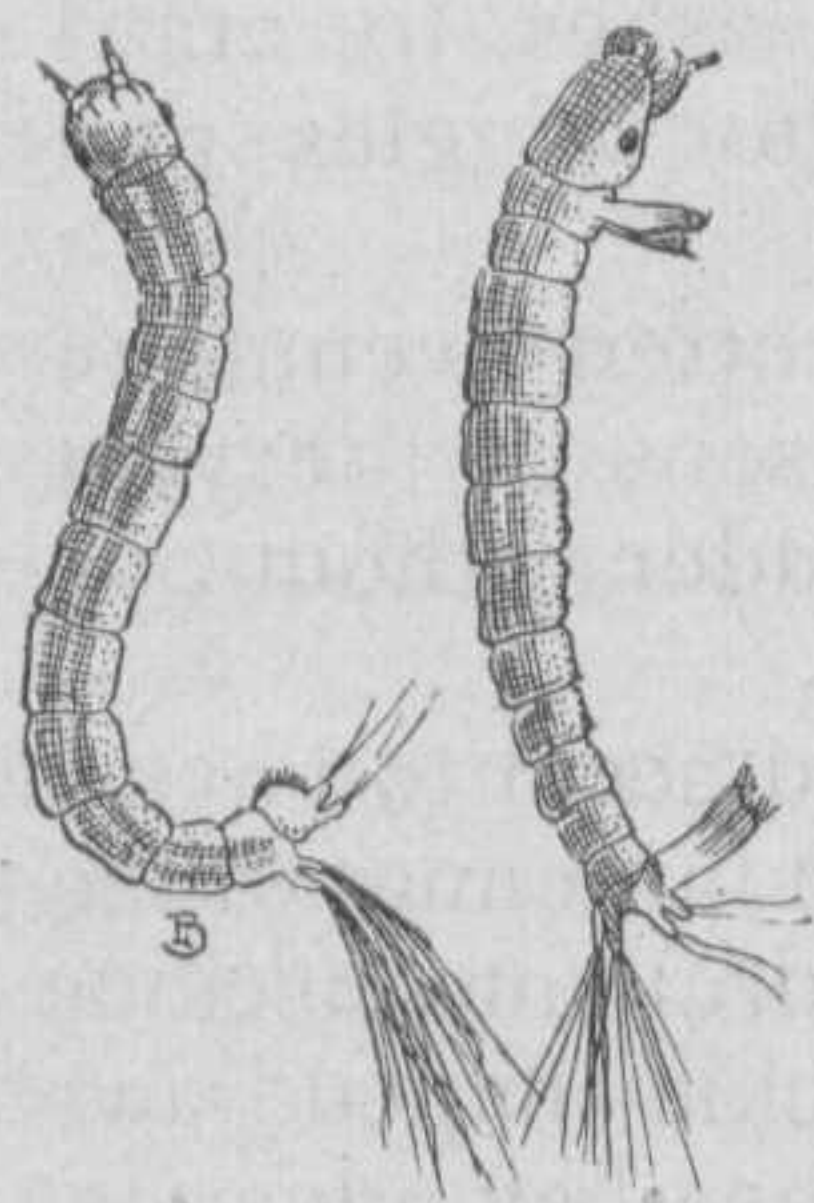


FIG. 3. CHIRONOMUS LARVA: BACK VIEW WITH FEET DRAWN IN AND JAWS CLOSED; SIDE VIEW WITH FEET EXTENDED AND JAWS OPEN.

a moment, standing perfectly still as if listening. Perhaps he hears the groans of his dying comrades, but all unheeding the warning, he steps forward, touches the fatal spring, when in he goes to perish with his comrades.

Young microscopists may like to know that the *utricularia* can be preserved in the house a long time by putting the stems or sprays in an open, shallow dish of water where they will grow readily. I have kept the plants months together in a large glass dish where they looked charmingly beautiful and were the admiration of all who saw them. It is very interesting to watch their growth. The

ends of the growing sprays unroll like ferns, and with a magnifying glass you can see the development of the little bladders, and you may make discoveries — who knows? I know that for a long time it was a mystery to me how the bladders captured and imprisoned the little animals. Every day I saw they were entrapped and never escaped, and I studied and pondered over the matter a long time, and was so interested and determined to learn the secret that I spent night after night looking through the microscope, watching the strange, unwary creatures fall into the trap.

At last I concluded to adopt the following plan: I took sprays of the plants that I had grown in clear

water that contained no animalcules, so that all the bladders were empty and quite transparent. In another dish I had put a great many masses of mosquito eggs. Mosquito eggs are found floating on almost any standing water, in dark, compact masses. In warm weather they hatch in a few hours. So you can understand how quickly I could swarm a small vessel of water with the mosquito larvæ by introducing the eggs where I wished them to hatch. When they were hatched I put some of the water in which was a large number of the tiny creatures into the live box with a spray of the plant containing empty bladders. I placed the box under the microscope and closely watched the manner of capture. I became certain that in almost every instance the larvæ were caught tail first. The tail is brush-like, and when it swept over the door or valve that leads into the bladder, I saw that the door would immediately fly open and always draw the larva in. I soon became satisfied that the valve was very sensitive when touched at the right point, but to this day I cannot tell what the power is that so quickly draws the creatures within. I earnestly hope that some young microscopists will yet be able to ferret out the cause of this singular power.

Those who have read Mr. Darwin's very interesting book on *Insectivorous Plants*, will have noticed that he says the valve of *Utricularia* is not in the least sensitive, and that the little creatures force their way into the bladders — their heads acting like a wedge. But this is not the case, as Mr. Darwin himself was convinced some years before his death. In his usual kind, gracious manner he admitted that he was wrong, and gracefully says the valve must be sensitive, although he could never excite any movement. In a letter to me bearing date June 1st, 1875, he says:

"I have read your article (in *Harpers' Magazine*) with the greatest interest. It certainly appears from your excellent observations that the valve is sensitive. . . . I cannot understand why I could never with all my pains excite any movement. It is pretty clear I am quite wrong about the head acting like a wedge. The indraught of the living larva is astonishing."

## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

### IX.

ELIZABETH CANNING: DIRECT TESTIMONY.

**I**N the February number I narrated some trials illustrating the danger of trusting to Circum-

stantial Evidence. This month's article will show that Direct Testimony is often untrustworthy.

The trial of Elizabeth Canning is a famous example. About a hundred and thirty years ago Elizabeth, then a girl of eighteen, was employed as a domestic in an English family. One New Year's day she



asked leave to spend the holiday with her uncle; her mistress consented, and she went. Night came, and days followed, but she did not return. It was meantime ascertained that she made the intended visit at her uncle's and that her uncle and aunt accompanied her part of the way back in the evening; but beyond this no trace of her could be discovered until the very end of January, when she appeared at her mother's house, emaciated, pale, weak, evidently almost starved, scarcely clothed, and showing a recent wound upon her ear. "Why, Elizabeth! where have you been? What has happened?" and many like questions were poured upon her. Her story was — and the reader should understand that she had always borne a high character as a blameless, trustworthy girl — that, after parting from her uncle and aunt on New Year's night, she proceeded towards her employer's home, when she was attacked by two men who robbed her of what money she had, stripped off her gown, and dragged her along the road for some distance, to a house into which they carried her. Here she was taken in charge of by a "tall and swarthy" old woman whom she thought she heard called "Mother Wells!" This woman shut her up in a "longish, darkish" room, which Elizabeth described particularly, and here she was kept confined with scarcely any food, until the day of her return home, when she contrived to escape through the window; but in so doing tore her ear.

There was some little corroboration of her story; and there was a house in the neighborhood she described, kept by a landlady named Wells; therefore the police carried Elizabeth to this house, and here she showed them the room in which she said she had been confined, and pointed out the board nailed against the window against which she declared she hurt her ear.

The police then collected the inmates of the house in one room and asked Elizabeth if she could identify the woman who had kept her imprisoned; but instead of designating "Mother Wells," she pointed to an old gypsy woman sitting by the fire, and said "That old woman in the corner was the woman who robbed me."

Then began the conflict of Direct Testimony. The gypsy arose from her seat, threw aside a cloak which had partly concealed her face, looked steadily at Elizabeth, and exclaimed, solemnly: "Me rob you! I never saw you in my life, before. For God Almighty's sake, do not swear my life away! Pray, madam, look at me in the face; if you have once seen it before you must have remembered it," etc. And, sure enough, it was a face which could not well be mistaken for another; being naturally very ugly, and also deeply scarred. But Elizabeth adhered to her story.

"Pray, madam," said the gypsy, "when do you say I robbed you?"

"On New Year's day," answered Elizabeth.

"Lord bless me!" exclaimed the gypsy; "I was a hundred and twenty miles from this place then."

And the gypsy's son who was present declared the same. But Elizabeth's story was so far believed that the gypsy and some other persons residing in the house, were brought to trial for imprisoning and maltreating Elizabeth, and, chiefly on her testimony, were convicted. The gypsy called several witnesses who testified that on the New Year's day they saw her at places far away; but they were disbelieved. But the judge doubted the correctness of the verdict. And many persons shared his doubts. Soon the case gave rise to great discussion throughout London. No less than three dozen pamphlets were issued, some espousing Elizabeth Canning's case, some taking sides with the gypsy. The famous novelist, Fielding, who was a London magistrate at the time, and had taken some of the testimony, wrote in favor of the verdict; and the painter Ramsay contended against it. There was a new and more thorough investigation, the result of which was that Elizabeth was put upon trial in her turn, for having sworn falsely against the gypsy. On this trial so many more witnesses came forward to prove that the gypsy was in quite another part of England on the New Year's day, that the jury, though doubtingly and reluctantly, found Elizabeth guilty. She was sentenced to be transported to New England, which was a punishment sometimes used in those days — it would not be deemed a very severe one now! But there were many people who believed her to have been unjustly condemned, and a considerable sum of money was subscribed and given to her to make her exile comfortable. And to this day it is regarded as very uncertain whether her story of her long absence and of the gypsy's cruelty to her was true or false. On the one hand: what possible motive could she have for making up such a story, or how could she be mistaken about such a remarkable countenance? On the other hand: how could so many honest witnesses be mistaken in declaring that the gypsy was in their part of the country at the time? The truth will never be known.

The truth of this particular case is no longer of any importance, but it is important that young persons should realize how difficult it is to depend even on Direct Testimony. Lawyers very early learn that if circumstances often deceive, so also witnesses are frequently untrustworthy. Lying witnesses are not the only ones who mislead. Every one knows that persons do sometimes come into court intending to swear to a fictitious story. This is the crime of perjury; and it is severely punished whenever it can be detected and proved. Just as Elizabeth Canning was transported for the perjury which the jury thought she had committed, so at the present day, any one who can be proved to have committed it is sent to prison. But mistaken witnesses create even more difficulty than dishonest ones. And not only in lawsuits, but also in daily life every one needs to remember that it is not safe to depend too confidently upon what is told us, even when the speakers mean to tell the truth.



There are several causes which embarrass persons in narrating what they have seen, and therefore throw some doubt over all Direct Testimony. One is the great difference in the perceptive powers. One person can see very distinctly but does not hear well; he will give a correct account of things visible, but he may err very much as to what was said in his presence! yet may be unaware of the trouble. Another can hear perfectly, but is near-sighted; he will be a good witness as to what was said, but not as to the appearance of things. Clouds or sunshine, fog or clear weather, noises in the neighborhood, haste and inattention, and various like causes make more difference than many persons know, in their power of perceiving accurately what is happening around them. One is often sure that a thing did not occur, because if it had he must have perceived it, when in fact it did occur, but he did not notice it.

Forgetfulness prevents persons from giving accurate accounts; especially of what was said. Few can remember minutely the words of even a brief conversation. Whenever any one repeats the language of another, it is safest to remember that very likely the repetition is not accurate; something may have been forgotten and omitted which would quite change the sense; yet the witness may honestly suppose he is relating the matter correctly. And this fact is very curious, that many minds will mistake an imagination of incidents for a memory of them. In recalling an event which took place a while ago, fancy suggests details which cluster around the principal fact, and seem really to have been parts of it; and the person at length mistakes the images suggested by fancy for realities restored by memory. This is a fertile cause, not generally

understood, of the errors which creep into Direct Testimony.

Illusions may sometimes wholly deceive a person as to what he has seen or heard. These do not occur very often, but there is abundant evidence that they do occur, and it is often possible that a person who is relating something which he sincerely believes occurred in his presence, is, in reality, only describing an illusion of the senses.

When either of these causes of error coöperate with a bias or wish in the mind of the witness, his narrative is almost sure to be perverted from the truth. Suppose a person who dislikes another very much, is relating something which the other has done; the dislike will greatly increase the probability that details will be varied to the other's disadvantage. Suppose, on the contrary, one is narrating matters about a very dear friend; the sentiment of affection will tend to weaken recollection of unfavorable details, and stimulate imagination of commendatory incidents; and the result will be a version which, though honest in intention, is quite erroneous.

In all the affairs of life, whenever we are called upon to depend upon the accounts given us by other persons, we need to consider carefully their powers of sense, of memory and of fancy, and their sentiments or wishes, and to make allowance for there being powerful causes of error in these various fields. Especially is this important when unfavorable stories are brought to us about our friends and neighbors. Though the story-teller may be honest, there are many ways in which he may be mistaken. It is not best to form harsh judgments of the absent, even upon Direct Testimony which appears perfectly honest and convincing. Wait and hear the other side.

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## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

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### IX.

#### BOOK-REST.

PERHAPS you would like now to make something useful and pretty for your father or your big brother, so I will try to tell you how to make a book-rest like one I made myself for Christmas. It has no fancy carving about it, but is made (as you can see by the illustration) of straight pieces.

The directions for finding the angles might be given mathematically, so that you could get them for yourself with a little figuring, but it will be easier practi-

cally to find the angles in the way I describe, and they will be accurate enough for this piece of work.

For the book-rest you must buy some planed white-wood which is preferable to any other on account of staining. A piece eighteen inches long, twelve inches wide and one half inch thick, will be enough; it will cost about ten cents.

Lengthwise with chalk-line mark off eleven strips five eighths inch wide; cut them with splitting-saw and plane; the sides cut with fore-plane, making each strip JUST one half inch in breadth as well as thickness.

We will begin with the uprights for the front.



Take one of these strips, square one end: then measure a little over one half inch down the stick, and with try-square make a continuous line around the stick.

Find the centre of the end just squared by drawing diagonals, and then either with block-plane or knife, point the stick by putting the edge of knife on the continuous line on one of the faces of the square, and directing the blade toward the centre of end; a steady, firm pressure will give a good bevel. Finish the other three sides in the same way, and you will have a pyramid with square base for one end of your stick: cut the stick off square thirteen inches from the point. Finish two more sticks in the same way, and you will have your three front uprights.

Now take another piece, square one end as nicely as possible (everything depends in this job on the neatness and accuracy of your work), measure seven five eighths inches from squared end; cut off and square: you will have a stick seven and one half inches long. Make another like this from the piece left. These pieces we will mark *A*: they are the short uprights in diagram. Now cut two pieces twelve and one half inches long: square both ends; find exact middle, measure one fourth inch in each direction from middle and draw lines with square *across* the stick. Right and left on the side faces (*not* the one underneath), draw lines parallel with top face one fourth inch from it. These last lines show how deep you are to saw on the first two lines with crosscut saw. With chisel remove the little piece one half by one half by one fourth. Take care not to cut the stick deeper than the lines indicate. The sticks will look like fig. 1. These are the cross bars, *BB*.

From another stick cut three pieces six inches long: square both ends; these are marked *CCC*; two belong to the back, and one for the front connecting *CC*. From short pieces left cut two pieces two and three fourth inches long; of course squaring the ends: these are *DD*, and go at side of front.

For the uprights of back cut two pieces ten inches long: square ends. On a board or piece of paper mark on a line two points three and one half inches apart. From the right-hand point draw a perpendicular, the line connecting the two points being the base of a triangle. Lay one ten-inch stick from the left hand point to the perpendicular, making the hypotenuse of a right-angled triangle. You will readily see how much of a bevel is required to make the lower end set firmly. It will probably be about one eighth of an inch; make the same bevel on the other ten-inch piece: these we will mark *EE* (the uprights for

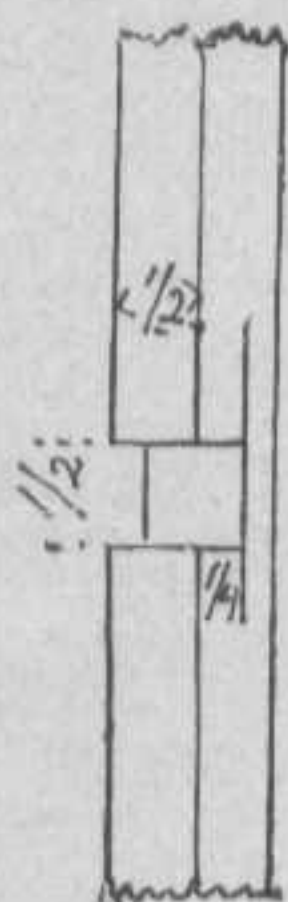


FIG. I.

the back). Bevel the lower ends of the three pointed sticks (the uprights for front) in the same way. (*See base of fig. 2.*)

On one front upright, measure two and three fourths inches from point on face *A*: cut out bit one half by one half by one fourth as before in piece *B*. Repeat at eight inches, and again at ten and five eighths inches from point of stick. This completes the middle upright.

Now to return to pieces *EE*. On a board or paper mark in line three points three and one half inches apart. Hold beveled end of pointed upright on point one, so that a point *Y* ten inches from bevel will be perpendicular to point two. Stand bevel end of *E* on point three, so that the other end will rest against point *Y*. You will then see the bevel needed on upper end of *E* to make it fit against point *Y*. It will be about an inch long.

Treat the other  $E$  in the same way, taking care that both bevels start from same face of stick.

Square end of new stick : cut off six inches and square again. At point three inches from end cut out bit one half by one half by one fourth, as in *B*. This is the stick *F*

Cut two sticks ten inches long: square ends. These are *GG*.

The pieces are all cut out; now of course you had more whitewood than these measures, but it is so cheap it seemed best to allow for mistakes, and the spoiling of two or three sticks in cutting bevels, etc. The bits left always come handy.

In putting the parts together you must be very careful. You will need some one-inch brads and some seven-sixteenths or three eighth ones also, and about two feet of brass spring wire, two French screws one inch long (slim ones), and two five eighths inch ones.

Take first the pointed piece for the middle of front: the one with the squares cut out of it: fit one of the *B*'s into the upper place and the other into the lower one. Put piece *F* into the middle slot; put two brads through each piece (*BBF*) and into the pointed one. Turn the whole over so the face *A* is down.

Take two pieces marked *A*, and with inch-brads fasten pieces *D* endwise, so that the upper face of *D* will be two and one eighth inches from end of *A*.

Place one  $A$  between the two  $B$ 's on the right of pointed stick with  $D$  pointing to the right; you will find that the end of  $F$  touches  $A$  at a point two and one eighth inches from the bottom, so that

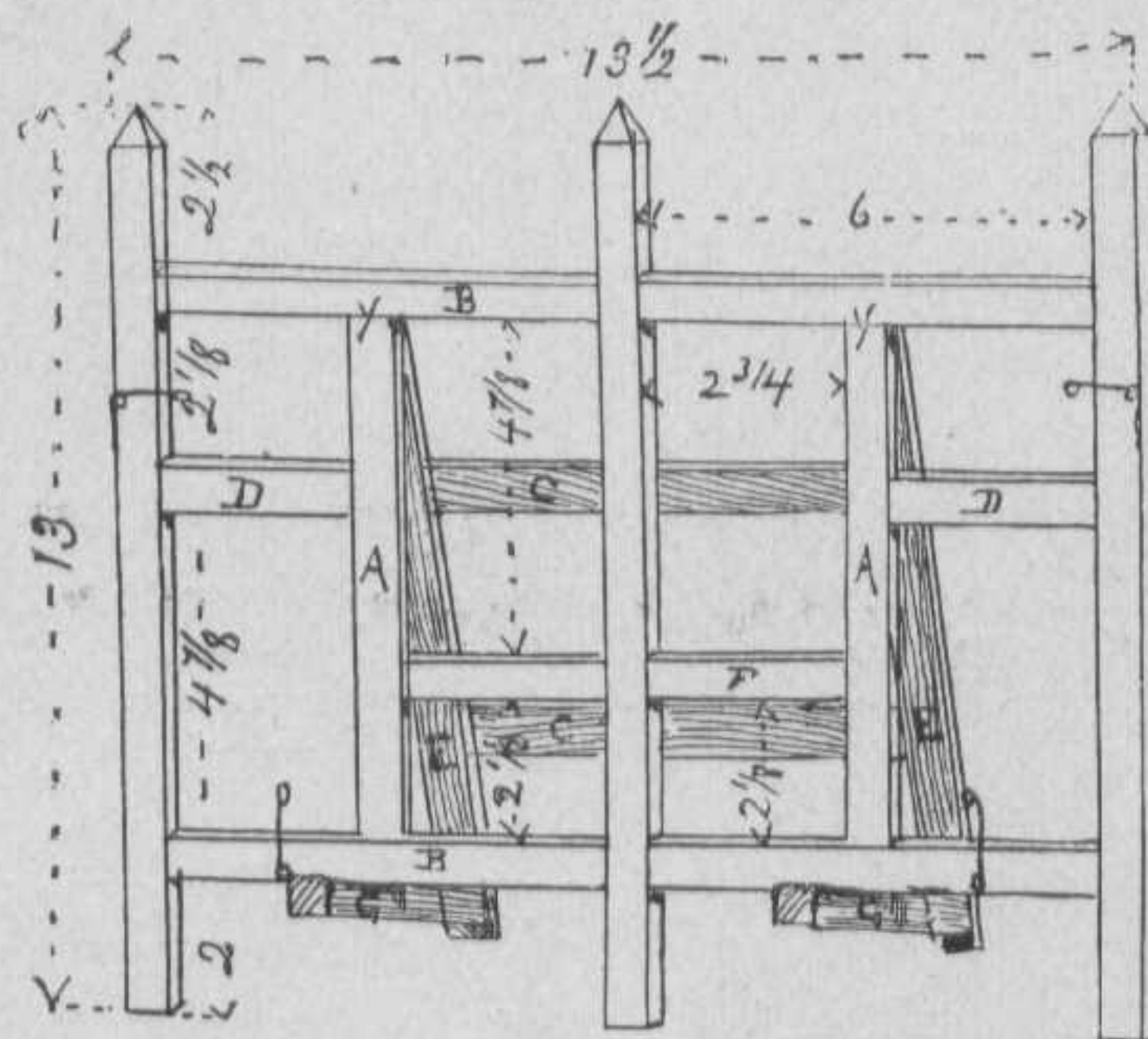


FIG. 3.

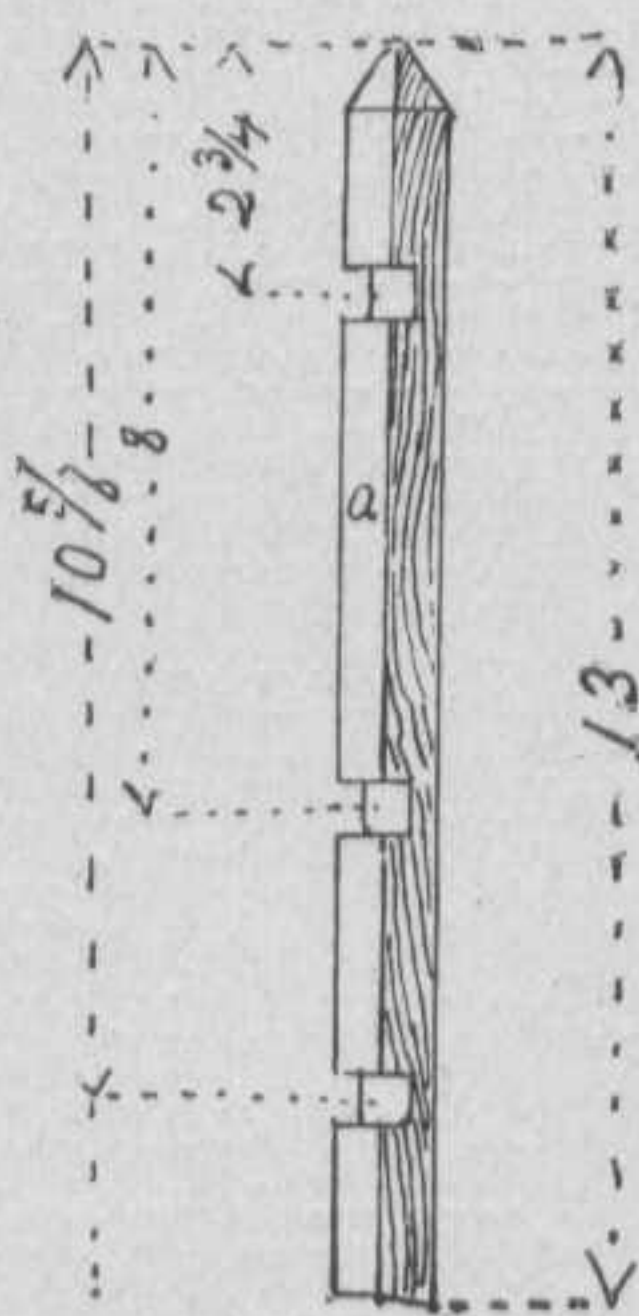


FIG. 2.



*F* and *D* divide *A* plus one half inch (eight inches) into thirds.

Place the other *A* and *D* facing just opposite on the other side of pointed stick. You will find that the ends of the *A*'s touch the *B*'s at a point half-way between the end of *B* and the pointed piece. Secure in position with inch-brads.

Place one of the other pointed sticks to the right, the other to the left of ends of *B* and *D*, and fasten so that the end of upper *B* is two and one half inches from point, and *D* two and one eighth inches from upper *B* and lower *B* *slightly* over two inches from bottom of bevel. In placing these two pointed pieces *be sure* and have the face *a* (*fig. 2*) down.

Now for the back. Take the pieces marked *E*; measure two and five eighth inches from upper ends; fasten one of the pieces *C* by the ends to these points, and the second *C* at a point a *little* over two inches from bottom.

Fasten upper beveled ends of the *E*'s to backs of points *x* (*see picture*) with short brass screws and a couple of brads.

Next take pieces *G*, and measure two and three fourth inches from end: bore holes large enough to admit long screws; with brads fasten third *C* at points one and one half inches from ends of *G*, and one and one fourth inch from holes. (This is to support the book.) Then screw *G*'s directly under *B* and *A*, the long ends directed backward. You will find the seven-inch ends will touch the lower part of pieces *E* about one half inch from bottom. Fasten with brads.

These two pieces (*G*) serve to keep the back from spreading away from front and make the rest strong enough to support quite a heavy book.

This is really a very simple thing to make, for the lines are all straight, and if you are careful in cutting, fitting and joining, you will feel paid for the trouble.

In next number will give directions for finishing.

## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

### IX.

#### IN MY LADY'S CHAMBER.

THERE are two things I tell my girls it is impossible to be too particular about," said a good housekeeper. "One cannot be too nice about washing dishes or doing chamber work." And this, from one of the most graceful of hostesses used to entertaining the best company of the State—army officers and foreigners of distinction her guests—deserves your consideration.

"I always know," said another woman of the world, "whether the lady of the house is old-fashioned enough to look after the comfort of her guests herself, by the state of the toilet ware. If that is nice, the mistress has seen to it herself, for that is one thing servants will not do properly, unless her eye is on them." I will go farther, for it seems as if few mistresses themselves know how to provide the niceties of the bed-chamber in a house. There will be a set of inlaid furniture, pillow overlays, ruffled and laced, a pink china toilet set, decorated splasher and mats, in the best bedroom of course, but how is the bed fitted and when was it aired, and is there a covered pitcher and glass for drinking water, and a soap dish with drainer that won't let your French soap dissolve in it, and a table you can write on comfortably, or a footstool of any sort, or a dozen other things for comfort? If the spare chamber has these, how is it with the family sleeping rooms, and your own bed-

room, Anna Maria, if left to a careless servant or inexperienced girl?

Let me advise you to read Florence Nightingale's *Notes on Nursing* at once, in the beginning of your housekeeping, to learn the reason for the strict care of bedrooms for sick or well. The human body throws off by insensible perspiration, and by the breath, every night several ounces of waste animal matter, that has served its purpose, and which the system is in haste to get rid of. This waste is thrown off in a diffused form and is hardly noticed in a single night, being mostly absorbed by the night clothes and bedding. If these are hung in a draft of air, much of it passes off, and if the sun shines on them out of doors, that has still more effect in changing the waste to a harmless form, which we mean by saying the sun "sweetens" things. But if the day clothing is left in a heap, the bed just as you get out of it, and the night-gown rolled up or hung in a close closet so that little air reaches them, the waste decomposes, and gives the unpleasant beddy odor complained of in sleeping rooms. Well may they have a disagreeable smell, for day by day a substance has been allowed to gather in the room, and penetrate everything there which if collected in mass, so as to be seen and recognized would be shocking and offensive to the last degree.

This waste which saturates clothes and bedding is absorbed again into your body which is more sensitive to such influences when asleep than awake. You breathe it, your skin absorbs it by those myriad, mys-



terious vessels of which it is full as a sponge, and the blood receives this waste again, to the injury of your health and complexion. You must make a habit to get rid of this, taking off all the clothing at night, especially that worn next the skin, and hanging each piece separately where the air can reach it, and by airing the bed and bedclothes every day, giving them frequent days in the sunshine out of doors. The Southern method is a good one as told me by an old Louisiana housekeeper, who said that once a week, on Saturday, all the mattresses and bedclothes were put out in the sun, on frames for the purpose, and left all day, to be made up wholesome and sweet with the weekly fresh linen at night. This is a nice practice which all ought to adopt some sunny day each week.

When you get up in the morning, take off the blankets and spread them on chairs where the sun will fall on them if possible, throw both sheets off to leave the mattress to air, open the windows wide, and put the pillows in them to sun. Hang your night-dress where the air will blow through it. If you must wear an undervest all the time, have a change for night, and let me tell you, this little habit of changing the clothing next the skin frequently, has more to do with the complexion than you are aware. A girl who has an irritable skin will find a great difference in the clearness of her face if she puts on a freshly aired suit of merino every night and morning. By using the skin to these changes and to bear the air a few minutes daily, you lessen the risk of taking colds and neuralgias all your life.

As long as you have your mattress off, we may as well examine the bedstead a little. How often do you thoroughly dust it, springs, slats, corners, and mouldings, side rail and head-board, as well as the rest? Lay newspapers on the floor to catch the dust, and go over the bedstead, getting the last grain of dust out of every crevice, using pick and whisk broom or long bristle brush for the purpose; then if it has not been very carefully kept, touch the sockets for the slats with a swab wet in hot strong lye, setting a basin underneath that none may drip on the floor. Wash the ends of the slats with a scrubbing brush in strong suds, and then dip them in hot lye, and stand the boards in the sun to dry; swab every crack or rough knot in the slats and inner work of the bedstead with hot lye, and when dry, saturate them with kerosene, putting it on with a feather, and apply it to every crevice of the mouldings and carvings. Polished wood always looks better for an application of kerosene, but this is for another purpose, to prevent any possibility of future annoyance, for take one thing to heart about your beds and bedrooms, that where dust lies there will be insects. Dust the bedstead thoroughly at least twice a week if not every day, brush the slats and under parts at the weekly sweeping, and go over them with kerosene twice a year at house-cleaning times. Prevention is better than cure, and with this care you may insure yourself against a housekeeper's worst annoyances.

Why do we use the lye and kerosene both on the slats and rough places? Because insects select cracks and roughnesses of wood to lay their eggs, and harbor there, and the potash cleanses and removes all traces of them, while the kerosene soaks into the wood and keeps them away in future.

Now are the baseboards and corners of the room free from dust? I suppose of course the mantel and bureau are tidy, but how is it behind the glass, and on the wash-stand shelves, and in the corners of your closets? How do the bureau drawers look inside? It is rather dreadful to open bureaus after some young people have used them; for the lining shows ornamental touches in the shape of dark finger marks, smears of hair oil and cold cream, dust of powder where one upsets the powder-box, fluffs from hair brushes and stray combings, old soiled ribbons, notes, rusty hair pins, under the paper lining on which their white neckties and fichus are laid. Charming, isn't it? and traces by which a lady would wish to be known! Remove contents and take out the bureau drawers, and turn them upside down on a large newspaper or sheet on the floor to catch the dust, then brush the corners out with a whisk and wipe with a damp cloth. If soiled with grease or finger marks, remove these with mineral soap, or soda water, made by dissolving a bit of washing soda the size of a walnut in a gallon of boiling water. Rinse this off with a wet cloth, and sun the drawers an hour or two to make them wholesome, delicate, and pure as the nest of a girl's ribbons and laces ought to be.

When dry, line each drawer, large and small, even the comb cases, with clean manilla paper, fitting it nicely in the corners. You can afford to buy a quire of strong nice paper for this use, as one lining ought to last a year or two. White paper takes the color out of silk things by the trace of lime left in bleaching it.

Now you can put your scent satchets and muslin bags of rose leaves and sweet clover among the handkerchiefs and fresh clothes, with a happy feeling that they are in keeping.

Keep comb and brush in a separate box or case, fitted with paper lining which must be often changed.

I will suggest that a hair brush which is washed once a week, as all brushes should be, first with ammonia and then rinsed with alum water and dried, is a more becoming neighbor to a young lady's toilet, among her bows and laces, than the specimen too often found there.

Keep the toilet bottles wiped, the pincushion dusted, and the toilet mats beaten and aired, though nothing which will not wash really has any place there.

The washbasin, and all the ware about the wash-stand, needs washing or careful wiping every morning, but Katy's method of doing chamber work, or rather of not doing it, calls for immediate use of soap and soda water. A clean light pail with plenty of



hot suds for washing the toilet ware and clean dry cloths for wiping should go round with the slop pail every day. Bring the chamber pail now with hot water and a pitcherful of the strong hot soda water I told you of, and wash and scald every article, for you will find they need it. Often the sediment on pitchers and bowls will need sapolio to remove it, for it almost becomes part of the glaze in time. That neglected slop jar you will take out, and scrub with a broom and suds, not touching it with your hands; then let it stand with scalding soda water in it an hour or two, rinse, drain, and leave it all day in full sunshine.

Katy thought it enough to rinse it daily, or wipe it with a half-wet cloth. But you must know that dirty water leaves a slimy coating on whatever it stands in, wood, china, or tin, which is not rinsed off, and if left in this careless way, your slop jar takes a lining of putrid matter which gives the bad odor to ill-kept chamber ware.

Just fix it in your mind that a bad smell is Nature's warning of something evil and dangerous to be removed, and of all things dangerous about a house, neglected slops are to be dreaded. They contain fever germs, and are certain sooner or later to cause disease. Especially, if any epidemic is about, measles, scarlet fever, typhoid, dysentery or diphtheria, the floating invisible seeds of such sickness finds in the foul lining of waste pipes or slop jars and pails the very soil where it starts and spreads. The wisest doctors and scientific men are earnest in begging people to be more careful in these things about their houses, as the most terrible scourges are traced back to such beginnings as a sour sink, a neglected garbage barrel or ill-smelling slop pail. Above all things never allow slops to stand in bedrooms longer than can be helped. Run up the first thing after breakfast and empty them, leaving the beds till later if necessary, and at night, again empty what collects during the day, that it may not taint the air they breathe when asleep. This is the rule of the best English housekeeping, and in this country, and you must not think it too much trouble, for nothing is more necessary to health than such care, especially in warm weather.

Everything which holds water or slops in a bedroom should have a cover to keep the dust and bad air out of the water, and to keep the gases from the slops from spreading in the room. Miss Nightingale will tell you more about this matter.

I should not dwell on this if the care of bedrooms was not so shockingly misunderstood. Not one private house out of ten is well kept in this respect, and in boarding schools, etc., is shamefully neglected. I know of places where excellent French and music are taught with beautiful manners, where girls sleep in close rooms where the smell from neglected slops and wet carpets never dry about the washstands, is not to be described. Of course headaches, dull chills and nervousness are common, and I have

heard of malignant fevers in schools and boarding-houses caused by the same neglect.

Every day you should wash the slop jars and pails with clean suds, and a whisk or swab kept for such things, then wipe, or set them to drain in sun and air. There is nothing like sunshine to search and cleanse away the last trace of ill things, for the rays of the sun have the chemical power to destroy the germs of decay and disease in everything submitted to them. Sun your rooms, sun your clothes, your furniture and all utensils, to be sure that the inward refinement and purity we all strive for, I hope, extends to the sanctity of cleanliness and health of even the meanest article in your house. If the highest motives have weight with you, remember that as mistress or housekeeper, you are bound before God to watch over every point that can affect the health of those under your roof in food, comfort and cleanliness, most of all because more depends on them than any other of the conditions of life. Let no one with pettier views persuade you either that such care is beneath you as a lady, or is needless labor. It is the fashion to ridicule careful women who are anxious for the old brightness and strictness of housekeeping, but the worst old shrew who ever scrubbed and scolded deserves satire less than the women who neglect and slur over things of such vital importance as strict neatness and healthiness for "higher things," "claims of society," and the artistic cant of the day.

If you think this talk is too serious for the subject, remember that we elders see the end of many things which for you are at their beginning. Even if you are careless about these things to a degree, typhoid fever may not visit your house this year or the next, and nothing worse than chronic catarrh, headaches, or neuralgia, may ever come of it. But you can count on some reward for negligence, for nature always repays slights.

When you make beds in the morning, let it be with clean apron and freshly washed hands. You will not want to leave the dinginess from possible rubs against sink or stove on white counterpanes, or to sully white pillows with careless handling. A separate apron for making beds should be kept for such work alone. Turn the mattress over, end for end, and fold the sheet smoothly under the four sides of the bed, so that tossing at night will not pull it out of place. The old-fashioned sheets, two and a half yards long, won't do this, but a sheet six quarters wide and three yards long is a good size to turn under and keep in place.

By the way, it is nice to have a case of stout sheeting made to slip over the mattress and tie, to keep it clean under the sheet. This cover can be washed, and in moving or handling beds saves wear and soil enough to make it great economy to use one. The bolster needs a close case tied at the end, for the sheet will slip off and leave the ticking to be soiled by sleepers' heads.

The upper sheet is to be brought well down and



turned under the foot, blankets laid the same way, the end of one coming a foot farther than the other at the head, not to lie heavy on the shoulders at night. A narrow blanket crossway at the foot of the bed is comfortable for cold feet. The coverlid should reach quite to the bolster, but not turn over at the top, be laid square and true, turned under the foot, and then with the rest of the clothes be tucked lightly inside the rails of the bedstead, not folded under the sides of the mattress, but left for the air to reach it. The white coverlid should be large enough to come well down, and look as if the bed were a huge square ice cake, without a wrinkle anywhere, at corners or foot. The sheet is turned over the clothes a quarter of a yard at the top. You don't need telling that the same end of the sheet goes to the head of the bed each time, or that the same side should be next the bed and blankets always. There is something not pleasant in having the end that was over your feet one night next your face the next, or the side you slept on two or three times turned next the clean

blankets, to soil their fairness. In winter, have the footcovers or *duvets* as the French call them, comfortables of eider or goose down, a yard deep to lay across the lower end of the bed. These are very prettily made, because they are for the outside of the bed, and one side is crimson and another blue, or one is pearl gray with the other coral pink, or the top is pink brocaded with roses, and the under side rose red shading richly with it. It is well to have pretty things for your beds if you can afford them, because they make rooms attractive, and one tries to keep them in nice order, more than common ones. The boys' beds can be furnished with blood red or deep blue blankets, turkey red comfortables, and gay colored spreads, while the best room has all the glory of downy white blankets embroidered at the ends, the upper pair in pale blue or pink lamb's wool, fine as plush, the red and amber or rose color and pearl eider puffs and the marseilles quilt with its wreaths in soft colors, or the guipure lace over velvet or garnet silk — just as you happen to afford it.

## HEALTH AND STRENGTH PAPERS.

BY PROF. D. SARGENT.

### IX.

#### BOATING AND ROWING.

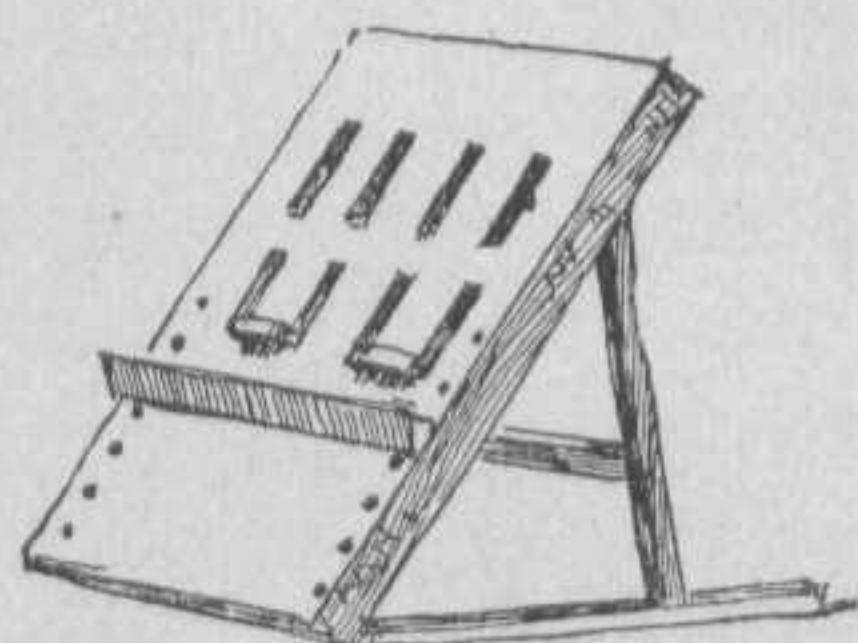


FIG. 1.

ONE of the most attractive exercises to those who are fond of the water, is boating. There is a fascination about oars and sculls, rudders and kedges, ropes, pulleys, etc., which old and young find it hard to resist.

Then the change of air and scene, the movement of the water, the management of the boat, furnish the best kind of physical enjoyment, and tend to make one vigorous and strong. The exercise obtained in sailing a small boat is usually of a passive nature, and offers few opportunities for developing the body.

A larger boat gives exercise to the muscles of the arms, chest and shoulders, in hoisting sail, getting underway, and wearing about, but affords little employment to the muscles of the back and lower extremities.

But in *rowing* a boat the muscles of the back, arms, chest and legs are all brought into play, and exercised in the most approved fashion.

The invention of the sliding seat has added greatly to the importance of rowing as a health-giving exer-

cise. Formerly the oarsman sat on a stationary seat, braced his feet against the stretcher or foot rest, bent way forward to catch the water with his oar, then swung back again beyond the perpendicular.

In rowing in this way the strain of the effort is brought mostly on the muscles of the arms and back, the legs being used only to sustain the resistance offered to the movements of the body. In rapid rowing when the heart is made to beat quickly, and the breathing is greatly increased, it is very desirable that the action of the chest should be free and unrestrained.

In rowing with the fixed seat the chest movement is obstructed, and in reaching forward it is often difficult to get a full breath.

This interferes with the circulation, and detracts from the benefits of rowing as an exercise.

For this reason, if for no other, the sliding seat should be used when possible.

But besides aiding the action of the heart and lungs, the sliding seat brings the muscles of the front and back of the thigh into powerful action, and adds greatly to the development of the whole body.

Some of you may think that a boat of any kind would be acceptable, even if it had no seat at all.

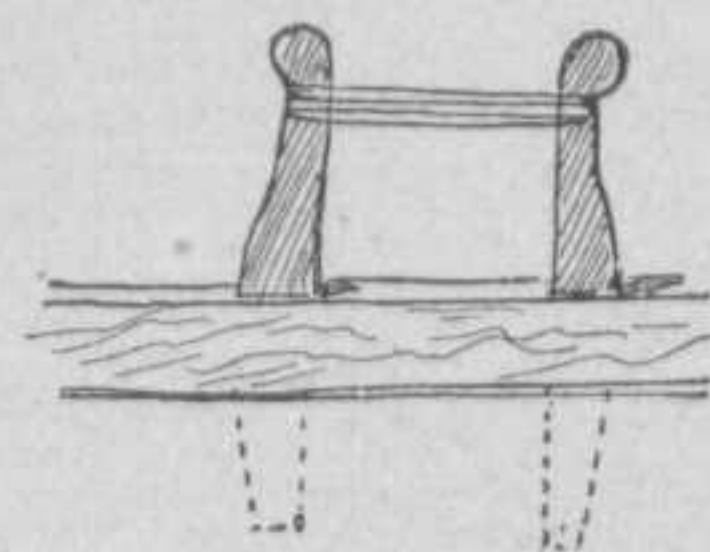


FIG. 2.



To be sure most anything will do to paddle round with for an afternoon's amusement, but when you come to row for exercise, regularly and systematically



FIG. 3.

as an aid to health and muscular development, all of the conditions should be as favorable as you can make them.

In order to get benefit from any kind of exercise you ought to be deeply interested in it. If you are interested you will enjoy it, and if you enjoy it, it will do you good.

But who can enjoy rowing in a boat where the seat is so high that your feet hardly touch the stretcher, where the oar handle points to the sky, and the oar blade is buried three feet beneath the water; where an attempt at a "spurt" brings the oar out of the rowlock, and lands you on your back in the bottom of the boat.

If these trifling inconveniences could not be removed, they might be endured as a means of self-discipline, but they can be removed by a little ingenuity.

If your seat is too high, and it is impossible to lower it, then make a temporary foot-rest on which the feet can be strapped down and the heels raised to the desired height. (See fig 1.) If your oar cuts under in the water, discard the round metallic thole-pin, and get wooden ones instead; then make your oar flat where it comes against the thole-pins nearest to you, and also where it rides on the gunwale of the boat.

If the oar tends to slide out into the water, put a button of leather on it where it strikes just inside of the thole-pins, care being taken to have the button on an angle, so that it will not interfere with the stroke in rowing. If the oar tends to fly out of the row-lock, get some copper wire and string it across the tops of the thole-pins. (See fig. 2.)

Now for a sliding seat. If nothing better presents itself, get a planed board about two feet long, and ten inches wide. Have a half-inch groove made along the sides of this board about one inch from the edge, then get another board ten inches long and ten inches wide, cover the top with three or four thicknesses of old canvas or carpet, and fasten two pieces of V-shaped wood on the bottom at such distances apart as to allow them to slide in the grooves just mentioned. (See fig. 3.) Fix the board seat at right angles to the seat in the boat,



FIG. 4.

apply a little grease to the groove, and you will be ready for rowing.

Of course any temporary arrangement of this kind placed in an ordinary boat will not work as nicely as though oars, seat, boat, etc., had been made originally for the skilful practice of rowing.

In regular rowing boats the length of oars, height of seats, distance of seats from foot-rest, etc., are all carefully prescribed, but it would be impossible to make a working boat over into a racing shell.

There are a few general principles in rowing, however, that can be carried out in most any boat, and if carefully observed will add greatly to the sport as an exercise, and to your skill as an oarsman.

In grasping the oar do not allow one hand to cover the end of the handle, or either hand to take the under grasp.

Hold the handle loosely with both thumbs over, and hands about four inches apart. In catching the water do not attempt to pull the oar towards the body with bent arms; pull the first part of stroke with arms straight (See fig. 4), finishing with body a little back of the perpendicular. (See fig. 5.)

At the end of the stroke drop the hands a little, bringing the oar just out of the water, then turn the wrist and push the hands forward, following with the body; now catch the water again, and repeat as above.

If the head and shoulders are thrown well back at the beginning of the stroke, it will add greatly to its force. Care should be taken not to dip the oar too deep, not to double the body over the oar at the end of the stroke, and not to jerk the oar through the water at any time. If a sliding seat is used the same general principles should be observed.

In sliding forward bend the knees outward a little, so that they will not press against the stomach and chest. In taking the stroke get the body straight, and the oar well back to the knees before commencing to slide.

Slide back vigorously, being careful to take the oar along with you, and not slide away from it as some beginners do. In preparing for rowing it is well to change the clothing, as in running and other exercises, and to take the same precaution against catching cold, by rubbing down and putting on dry clothing. The practice of rowing without a shirt is not an advisable one. It might be tried with impunity for a while, but a sudden falling of the temperature, or a slight rising of mist from the water, which is likely to occur just after sunset, would make the experiment a hazardous one.



FIG. 5.



## DAYS AND NIGHTS IN THE TROPICS.

BY FELIX L. OSWALD.

CHAPTER III. (*Continued.*)

## IN AN INDIAN CAMP.

OUR Satan-monkey seemed to share that opinion, for he chattered violently when Juan fastened the skin to the top of his cage. But what had become of his relatives, the crippled capuchins? In the excitement we had completely lost sight of them.

"They cannot be far off," said Juan; "one of them was completely crippled, and I am sure that I saw him not more than a minute ago."

In the next moment Benny was up the tree, never doubting that the monkeys had returned to their old refuge-place. But he had to own himself puzzled; the capuchins had disappeared, and after rummaging all the neighboring bushes, we were on the point of abandoning the search, when Juan happened to look into a crevice of the rock-pile below the mango-tree.

"Here's one of them," he called out; "hello! look here"—he interrupted himself. "He's dead; it's the old one: he's crawled in here to die. But where is his comrade?"

We removed all the loose rocks without discovering a trace of the younger capuchin, and the old one had squeezed himself into a hole where we had almost to flay him before we could pull him out.

"What made him go in there, I wonder," said the guide. "I have worked in the mines, and more than once we came across a cave full of the skulls and jaw-bones of dead animals. It often puzzled me how they got in there, but this seems to account for it."

Juan's discovery did not explain the disappearance of the young capuchin, but it probably solved another mystery, the question, namely, what becomes of dead animals. How many millions of birds, squirrels and lizards must die every year, and how rarely do we find their dead bodies, even in districts where beasts of prey are very scarce. Birds cannot all perish on their winter's travels; are they eaten by ants and worms? Why do we not find their feathers and others things that ants have no use for? And what becomes of their bones? The true explanation is probably that every dying animal retires to the very best hiding-place it can find.

## CHAPTER IV.

## THE OLD HERMIT.

About forty miles west of Lagunas we reached a place where a considerable tract of land had

been cleared on both sides of the river. It was an old mining-camp, but the gold-washings had ceased to be profitable, and with the exception of a small stone built cottage, all the miners' cabins had fallen to decay. The owner of the cottage was at work in his kitchen-garden, and received us with the courtesy of a Spanish cavalier, though his whole estate consisted of hardly two acres of cultivated land. He showed us the various methods of washing gold from the river-sand, and sold me a collection of curious minerals which he had picked up in the neighboring hills.

"All my comrades have left me," said he, when I inquired after the owners of the other cabins, "but I



THE HERMIT'S PET.

have got so used to this kind of life that I would not exchange it for any other. My old hermitage and my pets are all I want to be happy."

He had a cage full of Brazilian magpies and several tame squirrel-monkeys that followed him like dogs.

(TO BE CONTINUED.)



## WHAT TO DO ABOUT IT.

ALICE H. S. wishes to know how to extract the wax from bayberries as they are plenty near her home and she would like to make candles from them after the old fashion. Not a question since these conundrums were opened two years ago, has given me more trouble or more pleasure to answer, for it shows a bright, happy intelligence ready to observe the stores of nature, to ask their meaning and attempt their use. The Pilgrims and early New England colonists used the wax from the baybushes for making candles, so did the settlers in Northern Ohio, and still do the country people of Louisiana and Arkansas near the coast. Such candles are said to give a beautiful clear, fragrant light. But the art has so died out East that not one of the books gives the process for making them. The bay tallow as it was called was made by heating the berries in plenty of water, boiling slowly, straining and leaving the water to cool, when the wax rose on top. Then it was run in molds, like other candles, perhaps mixed with one third fine beef tallow to make it go farther. With the growing partiality for wax lights it is worth inquiring whether this industry of making bay wax cannot be revived as a limited luxury. It might become as profitable as raising silkworms on our northern coasts. We will all wish Alice good luck with her bay candles, and hope she will have the pleasure of lighting tapers of her own making next Christmas, and that she will be sure and let us hear how she succeeds.

ESTELLE. "Where can I get covers for my WIDE AWAKE?" From D. Lothrop & Co. The publishers of a magazine will always furnish covers to those who choose to order and pay for them.

2. "What use can I put empty spools to?" Carve them into spindles for the edge of dwarf bookshelves, or turn them into bracket supports, for which patterns will be given in future numbers of the WIDE AWAKE.

3. "What can I do with the scraps too small to use in patchwork?" Use them for dwarf patches only an inch square alternating with white.

EVA M. G. "Please tell me a little about the Trade Dollar." It was desirable to have a silver coin identical in value with certain foreign coins largely used in trade with Oriental nations, and the trade dollar was issued, weighing four hundred and twenty grains against four hundred and twelve and a half grains, which is the weight of the standard dollar. It is really worth a few cents more than the common dollar, but not being the standard coin, that is, according to the weight adopted by law for the United States dollar, it is not legal tender, and would not be taken at the post-office in payment for stamps, or at the custom house in payment of duties on goods.

E. F. G. "A class of young girls want work to do for unfortunate people. It is too early in the season for them to send flowers to the 'Flower Mission.' For the meantime, the following has been suggested, viz.: To paste on green cambric quotations from poets and other writers in letters cut from white muslin.

1. "Would not such 'mottoes' relieve the monotony of bare hospital walls?" Certainly, if the quotations are very brief, simple and rich; for passages more than a line or two will weary sick brains, and being short, all the more need to be sweet or stirring enough to fill the mind with its snatch of thought. The effect will be better *painted* in white with black shading on leaf-green ground; you will find it very difficult to make pasted letters look well.

2. "Would the mottoes be acceptable, and would the express companies carry such packages free of charge?" Such work might be pleasing for convalescent wards. An inquiry at the express office in your town will be more satisfactory than one made here. I judge that the articles not being of any particular value in hospital work, like fruit, flowers or supplies, the express companies would not feel called on to send them free. Why undertake work that must go so far from home to reach its object? Have you no sick families in your own village to whom your attentions and help would be a grateful surprise? How is the poor-house furnished in your township? Would not the decorations and flowers in season be a thousand times more welcome to those who are overlooked by all, and who have forgotten to hope for any notice or pleasure? Hundreds of generous homes near by send their offerings to the city hospitals while the same charities exist in every county to be aided and encouraged, but how few think of the crushed and hopeless within an hour's drive of their homes? *Have* you a village or even a county hospital, or if there is one, is it a good one? If not, why not turn your talents to starting one, where accidents may be treated with the best appliances, and the sick with chronic diseases find such quiet and care as would be difficult to secure at home. I would suggest making the mottoes and other pretty things for home decoration, and having a pleasant little sale to raise money for couches, invalids' chairs, water beds, spinal corsets, and appliances for distorted limbs, to be lent in the neighborhood to persons needing them who could ill afford to buy such things. There would be a noble work, and worth your efforts — nay, it is one so close to you that it comes within the line of sacred inspiring duty, and any aid or suggestion I can give in such undertakings you may call for.

3. "What is the address of the Flower Mission?" Flower Mission, Hollis St. Chapel, Boston, Mass.

THE WISE BLACKBIRD.





## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### X.

DINAH MARIA MULOCK-CRAIK.

THIS lady evidently prefers to be known to the world as "The Author of John Halifax, Gentleman," which oftener appears in print than her name, and which she signs to her manuscript. In private, she is Mrs. Craik; to the public, she is represented as above. No one needs at this late day to be introduced to her, or hardly to the book from which she chooses, and rightly, to date her literary success.

*John Halifax, Gentleman*, used to be one of the chief favorites in the long list printed inside the brown covers of Harper's "Library of Select Novels." It was Number 201, preceded by a great many by then popular authors: Bulwer, Lever, Miss Bremer, G. P. R. James and others; by Charlotte Brontë's three great works and Thackeray's *Henry Esmond*.

It was fit for select company; and a great deal of midnight oil was burned by readers who needs must sit up till they finished it. I know a family where there has always been kept a copy on purpose to lend. In a country neighborhood it is continually happening that somebody is coming to the house, with the question, "Have not you got something for me to read—a real good story?" And if your literary conscience is what it ought to be, you will not send away the asker with a second-rate book, or one that is doubtful in style or moral. Thanks to so many writers who have made stories for us—how much we owe to them!—who have placed the human race under everlasting obligation, there is no necessity for doing it.

Therefore, if you wish to be what Emerson says it is your duty to be, a helper towards true enjoyment and forming a good taste, you will on such occasion go straightway and fetch some such work as *John Halifax*. A story is what is called for, and a good one:

and there it is. The thumb-marks on your disreputable-looking copy, the curled and chipped edges, the loosened leaves threatening to break away in spite of much stitching, and the universal dilapidation prove how much service it has seen, and that clearly a new one must be bought forthwith.

I lately took a fancy to look it over to see what it was that made it so popular; and I recognized one advantage in the outset—the autobiographical form, which was not quite so common then as now. We are naturally more apt to feel the reality of anything that is told in the first person. It is childish, perhaps, and silly, to believe a story while you are reading it; but if it is like what might have happened, I don't know as any harm comes of it. You can read a thing, knowing all the time that it is fiction, and yet allow yourself for the time being to become possessed of it as if it were reality. Who would be willing to doubt about *Robinson Crusoe*, or ask if *Pilgrim's Progress* is true, or think because there never could have been any such sprites as Ariel and Robin Goodfellow, that we should not get all the pleasure we can out of Shakespeare's *Tempest* and *Midsummer-Night's Dream*? It is certainly a compliment to the author, and, on the whole, shows that you have not become hardened and incredulous. Is it not better to believe too much than too little?

Then it is a story pure and simple, flowing right along, without any weak places, or breaks, or abrupt turns, or dry passages; as if the author had it all clear in her own head before she began to write it out. It is a love story, too, of a sort that is going out of fashion. It is a pleasantly written idyl of domestic life, with its pains, its trials, its perplexities, a fair share of them, but a good deal of happiness; and there is an air of home, of quiet and repose; and the spirit and the way of it have a charm we yield to at once; and it is as wholesome as country air.

There could not often be found such a boy as



John, but if found he would grow up into just such a man. Yet we believe in him as a possibility of boyhood and manhood—yes, there are some of his kind in the world outside of story books, with such honor and such fidelity, and by their lives compelling us to set a higher value on the meaning of the good old word, gentleman.

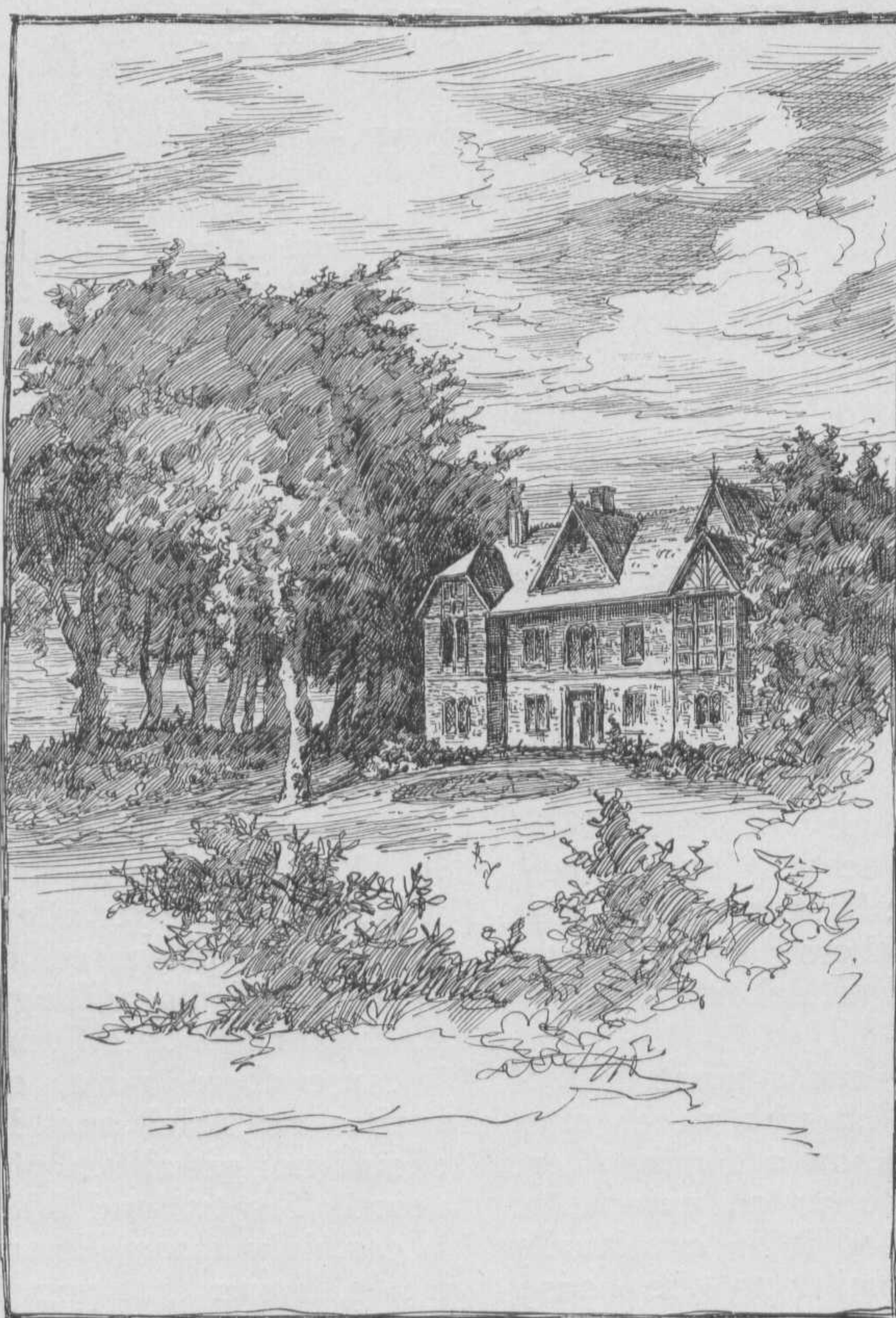
There is one thing that I as an individual reader, am grateful to her for; and that is for usually making her hero and heroine and good people happy in the end. If I mistake not, this she does as a rule. She has a motherly care over them and tenderness for them, and has not the heart to let them be miserable.

Now there is William Black, who is writing so

*Novels and Novel Makers*, from her experience of more than a quarter of a century, in which she tells something of her method, as follows:

I contend, all stories that are meant to live must contain the germ of life, the egg, the vital principle. A novel "with a purpose" may be intolerable, but a novel without a purpose is more intolerable still—as feeble and flaccid as a man without a backbone. Therefore the first thing is to fix on a central idea . . . by the true author so successfully disguised as not to obtrude itself objectionably. . . . Yet from it, this one principal idea, proceed all after-growths: the kind of plot which shall best develop it, the characters which must act it out, the incidents which will express these characters, even to the conversations.

She does not believe in moods or inspiration, but



THE HOME OF MRS. DINAH MARIA MULOCH-CRAIK.

many novels—it is impossible to have any confidence in him. He has no compunctions towards those children of his brain. But she, though she suffers them to pass through many tribulations, and there are agonizing separations, and hope is long deferred, she is not so cruel as to have a woful ending. And is it anything against us that we are all like little children, and want a "good come out" to a story, and that like the fairy princes and princesses, "they should live happy ever after?"

Not long ago, Mrs. Craik wrote a little essay on

in setting to her daily work as novelist "as regularly as the blacksmith and the bricklayer do to theirs." In this opinion she is by no means alone; George Eliot and Dickens, and some of the best writers who are gone, believed in and practised systematic work; close, daily application.

One thing more ought to be quoted here—her advice about style, which she repeats from an older writer. Everybody cannot follow it. Fancy Ruskin or Carlyle trying to do it. But most of it is good, and good for any kind of composition.



Never use two adjectives where one will do; never use an adjective at all where a noun will do. Avoid italics, notes of exclamation, foreign words and quotations. Put full stops instead of colons; make your sentences as short and clear as you possibly can; and whenever you think you have written a particularly fine sentence, cut it out.

The above essay is especially interesting taken in connection with her novels, where the purpose she speaks of is always carried out, unless possibly in the earlier ones. Her first was *The Ogilvies*, then *Olive*, *The Head of the Family* and *Agatha's Husband*. Not far from the year 1856, she wrote *John Halifax*, and in that she reached highwater mark. Notwithstanding the excellence of some of her work since, in the maturity of her power, there is no single story which is so satisfactory as a whole. She has written novels that are more able in their conception, more vigorous in execution; she has developed qualities in which that book may be deficient; she has gained a more thorough knowledge of human nature, and has drawn characters with a firmer hand, and discriminated the finer shades of character; but nothing has so suited readers of all classes like *John Halifax*.

It has been complained of some of her later books that there was too much moralizing, which clogs the narrative, and probably much of it is skipped by youthful readers in their eagerness to get at the story. Usually her best characters express the worth of high principle by their lives. It is the beauty of them that they work out through all that comes to them from day to day, the purest morality. One must be dull indeed who is not conscious of the healthful tone of all she writes. No young person will get false ideas of life from her pages; and that is saying much in these times of feverish and unwholesome novels. When there is so much in print which stimulates the imagination, and puts hopes and fancies into girls' heads that can never be realized, and would not be good for them if they could be, it is refreshing to turn to Mrs. Craik. She always rings true. In all social matters, duties and relations, her judgment is clear and her principles are sound.

She is a writer for every-day life: and it is for every day that one needs preparation, not for the great crises. Her subject is human conduct; such as may be manifested in any house. No grand exploits or romantic ones, but what concerns domestic happiness. It comprehends a great many things—family affection, regard for one another's rights, self-restraint when one is tempted to speak an angry word or do a spiteful thing; the duty of being patient with another's faults; the beauty of the law of loving kindness and the "small, sweet charities" and courtesies.

You will notice the vast patience with which some of her heroines bear the ills that come to them. Circumstances are not what they had cause to expect, or the thing they set their hearts on is long delayed, but they are made able to accept in quiet what cannot be helped, instead of rebelling and giving up as if

because they could not have at once what they desired, then there was nothing worth living for. Hilary Leaf, in *Mistress and Maid*, is one of her most beautiful characters, perfectly natural, too, who grows strong and sweet under grave trials.

Hilary as the youngest sister and Johanna as the eldest in the same story, are two of her best types of unmarried women, and Silence of the young married, in *Young Mrs. Jardine*. They are mistresses of themselves, and therefore capable of a wise influence over others. Silence Jardine with her true womanliness is of the kind for her daily associates to stay their hearts on.

Mrs. Craik likes to create such women, to whom one can confide little perplexities as well as serious troubles, and have them all cleared away or gain help to bear them: women to take hope and courage from, and find comfort in; with

A sweet attractive kinde of grace,  
A full assurance given by looks  
Continual comfort in a face,

as Spenser wrote of Sir Philip Sidney.

The calm of self-reliance

of Whittier's verse. Or in Wordsworth's often quoted lines:

The reason firm, the temperate will,  
Endurance, foresight, strength and skill,  
A perfect woman, nobly planned  
To warn, to comfort and command.

Within a few years our author has gathered papers out of her own experience and observation into two volumes, entitled *A Woman's Thoughts About Women*, and *Plain Speaking*, in which she gently preaches to her own sex. She thinks that most girls as they are growing to womanhood have work enough right at hand, if they will only see it and do it. Do the first thing, she would say, even if it be but

All sorts of odds and ends,  
Patching and mending . . . . .  
Holding sick children,—there is always work;

and then the next, and next, and never wait for great opportunities; so she who does the small work well that lies nearest her, without fretting, may find that something large and grand is waiting for her.

It certainly will not be the fault of this writer, or of Ruskin, or Charles Kingsley, or George MacDonald, if young people, especially girls, do not find their right place in life, and honor it by their fitness and their work.

Dinah Maria Muloch was born at Stoke-upon-Trent, Staffordshire, England, in 1826. As she has always shrank from publicity, there has never been as much written about her as about most authors. In 1845, Mrs. Mary Cowden Clarke met her at the house of a friend, and this is the way she describes her:

It was on that same evening that we are speaking of that Jerrold said, "I want to introduce you to a young poetess only



nineteen years of age," and took us into the next room, where was a young lady robed in simple white muslin, with light-brown hair smoothly curled round a well-formed head, and an air of grave and queenly quiet dignity. She sat down to the piano at request, and accompanied herself in Tennyson's song of "Mariana in the Moated Grange," singing with much expression and with a deep contralto voice. It was before she was known to the world as a prose writer; before she had put forth to the world her first novel of *The Ogilvies*.

In 1865, she became the wife of George Lillie Craik, nephew of the historian of literature of the same name. Mr. Craik is connected with the MacMillan publishing house. Mrs. Craik is seldom seen in general or even in literary society, but the favored few who reach her at her home find her charming. She has loving gray eyes, a gentle voice, dresses simply, and is very retiring. One somehow thinks of her as of a motherly brown sparrow. She has no children of her own, but several years ago adopted a child (who was said to have been found near her door), and to this little daughter and her husband her life is devoted. Some of her poems for children are among her very best, and that to "Philip my King," having reference to Philip Bourke Marston, is destined to the immortality which awaits all verse that takes a hold on the hearts of everybody.

She is much interested in London charities, especially in the Royal Normal College for the Blind, the history of which and of the man (an American) who is the head of it, she has published in a paper called "Light in Darkness." The Craiks have sometimes invited all the blind children of the school to a straw-

berry party in their hayfield, on which occasion a few friends have had the great privilege of being present, and to one of these we are indebted for a description of the place. It is from this beautiful home, about ten miles from London, that the author of *John Halifax* dates her communications: "The Corner House, Shortlands, Kent."

It is in Bromely, in a pretty rural neighborhood, away in from the country road, and its way of approach is under the shade of elms, along a lane where ivy covers the fences and nightingales abound; as pastoral and inviting as any bit of scenery in her stories. As the house is in Elizabethan style, the wooden beams of the ceilings are exposed in all the rooms.

The panes of glass are tiny and diamond-shaped. In the dining-room, across the fireplace, is carved in the stone, the motto, "East or west, home is best." Is not that just the way we think of her, a home woman, writing of home life, putting her central and controlling ideas into one of her titles, *The Woman's Kingdom*?

NOTE.—A partial list of her books is as follows: *The Ogilvies*, *Olive*, *The Head of the Family*, *Agatha's Husband*, *John Halifax*, *Gentleman*, *Life for a Life*, *Christie's Mistake*, *A Noble Life*, *Hannah*, *The Laurel Bush*, *My Mother and I*, *Mistress and Maid*, *Young Mrs. Jardine*, *The Woman's Kingdom*, *A brave Lady*, *Plain Speaking*, *A Woman's Thoughts About Women*.

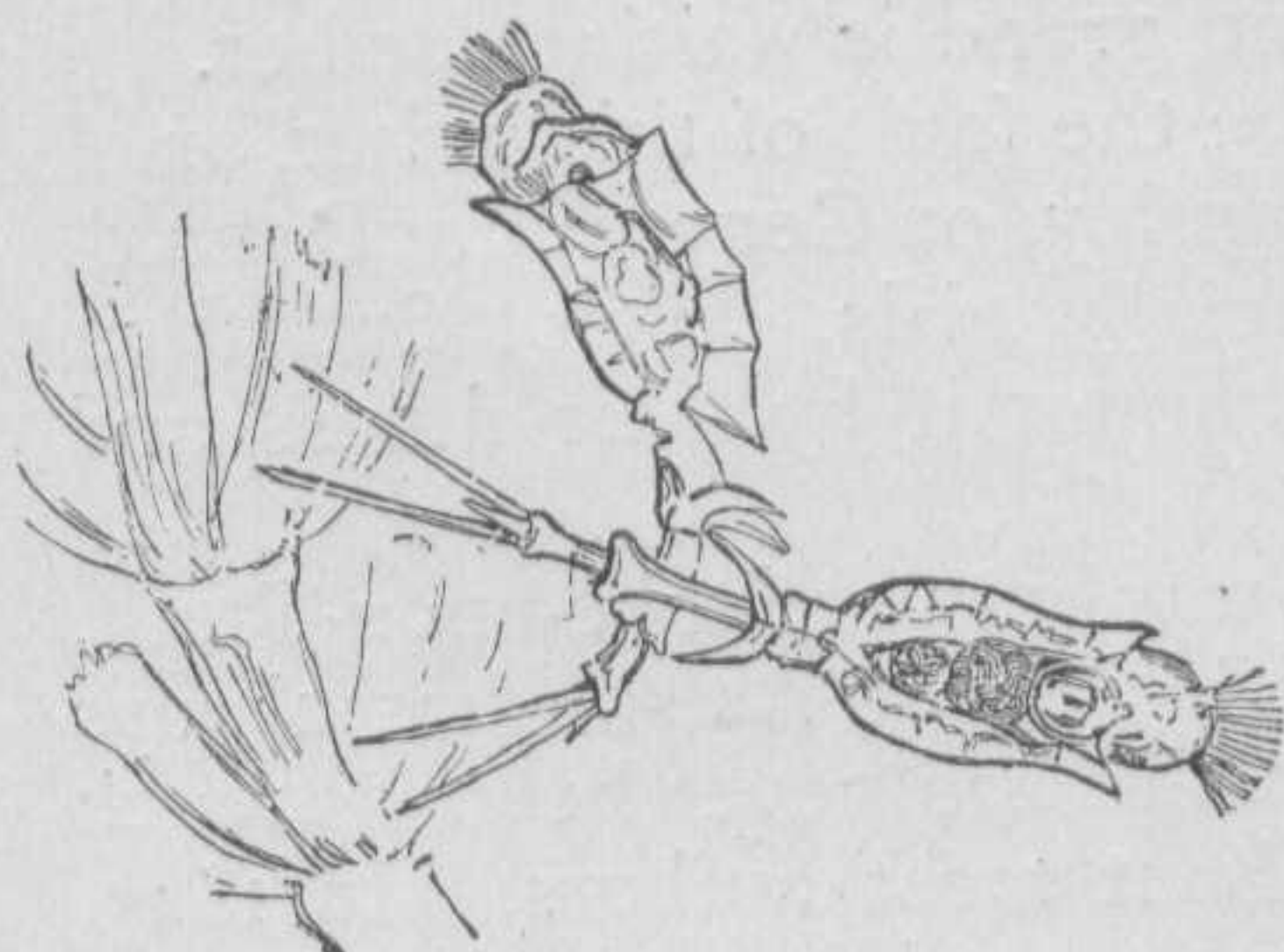
Besides there are several collections of short stories, her fairy tales including *The Little Lame Prince and the Adventures of a Brownie*, *Fair France* (travels), and she wrote or edited a series for girls from eight to eighteen, besides translating two or more stories from the French.

## THROUGH A MICROSCOPE.

BY MARY TREAT.

### X.

#### FREE SWIMMING ANIMALCULES.



SKELETON WATER WHEEL.

THE Brickmaker, Floscules, and Vorticellas are quiet peaceable citizens of the microscopic world, and seem to be impressed with the graver duties of life; they set up housekeeping and settle down for life moored to one spot.

But there are many others that live a free-and-easy sort of life—a wandering gypsy kind of an existence,

always on the move; and there is not much satisfaction in trying to follow these rovers if we wish to make a careful study of their structure.

So to be enabled to examine them you will be compelled to imprison them in the live-box and bring just as much pressure to bear upon them as they will stand without crushing, which with careful practice you may soon learn to do. But if you are simply making the acquaintance of these little creatures for amusement, it is more interesting and satisfactory to watch them while they are unrestrained, and see the curious feats they perform.

One of the most amusing of these little animals is the Skeleton Wheel-bearer (*Dinocharis pocillum*). His portrait is seen at *Figure 1*. He has a long foot consisting of three joints, and these joints are as perfect as those of our own knees and elbows, and can be moved as easily forward and sideways,



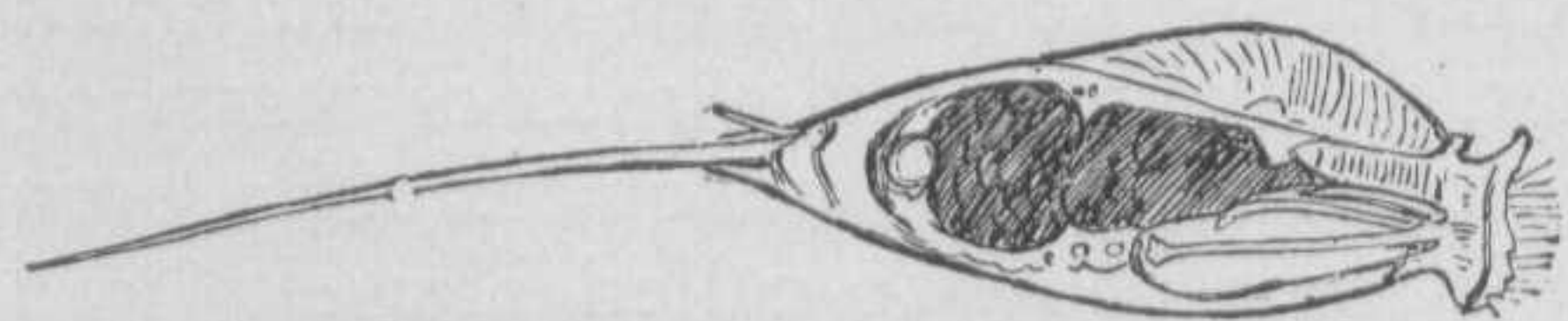
but not backward. The joints and foot are not covered with any fleshy substance, from which fact — the joints being so conspicuous — it probably received the name Skeleton. Two long slender toes extend from the last joint, and from the tips of these the Skeleton can show us more wonderful feats than any circus performer.

The toes can be widely separated, or brought close together, like a pair of tongs. Sometimes he stands on the tip of one toe and throws his body forward, or from side to side with a rapid motion; then straightening himself up, he stands on the tips of both toes as if posing, remaining perfectly still for a few moments and giving us an opportunity to take a good look at his curious body which is encased in a pretty vase-shaped, three-sided transparent shell. The head extends from the top of the vase, and is surmounted with the usual cilia, or wheel, which we see among all the rotifera. When he is tired of posing, away he swims in a graceful, easy manner, with his long foot straightened out and the toes brought close together.

You sometimes will find these pretty creatures, especially in summer-time, very numerous in the sediment at the bottom of your collecting bottles. Often I have found dead specimens, and very beautiful objects they sometimes are. Great numbers of tiny scavengers have completely cleaned out all of the soft parts of the body in a most neat and perfect manner, leaving the beautiful shell and vertical column, that runs through it, and the foot and toes, entire and perfect in all of their parts.

Think of the minuteness of these scavengers — untold numbers of them preying upon the body of an object invisible to the naked eye; and yet this body is a mammoth by the side of one of the scavengers! The mind can scarcely grasp the minuteness of these tiny creatures — creatures that seem to enjoy existence, eating, and apparently playing and entertaining each other like the higher animals.

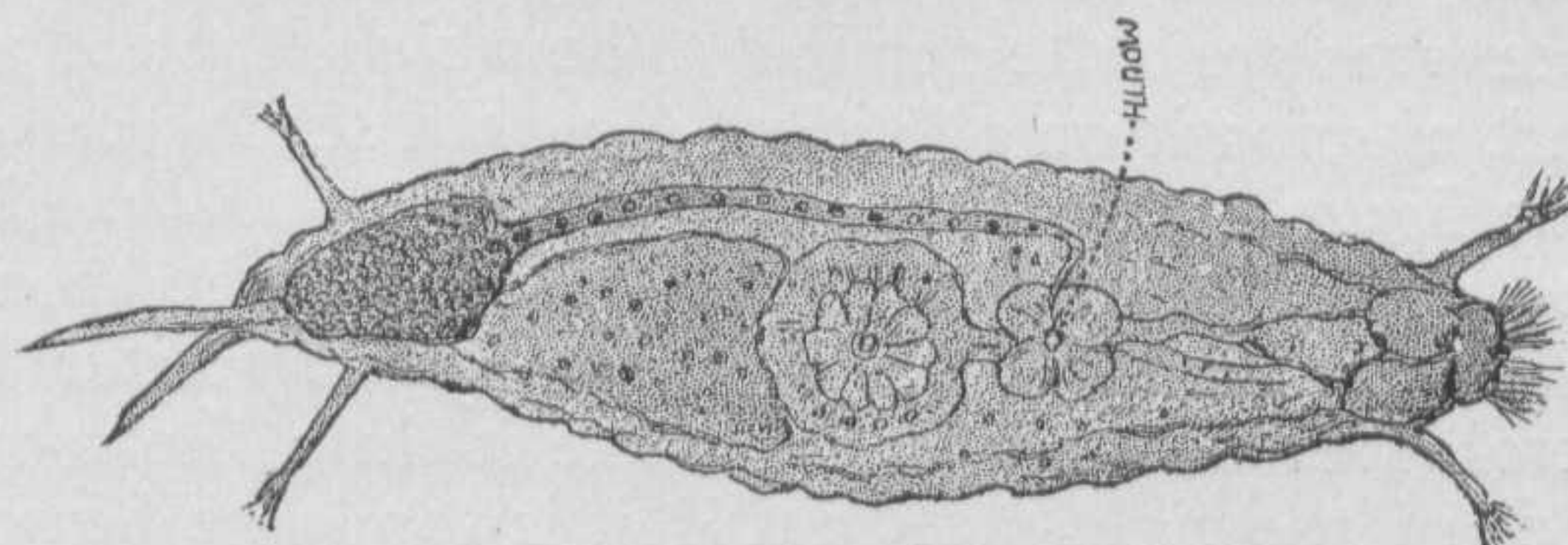
The whiptail (*Mastigocerca carinata*) (Fig. 2) is another delicate pretty little creature, and, like the skeleton, is encased in a glassy shell. It has a long, tapering, spine-like foot, or, more properly speaking, a toe which is attached to a very short foot by means of a flexible joint which allows free motion. You often will find him in company with the Skeleton, and they seem to vie with each other in performing



WHIPTAIL.

strange feats. The Whiptail, if possible, looks even more comical than the Skeleton when it stands on the tip of its long toe, a toe which is longer than the entire length of the body, now bending over and nibbling at the plants, now whisking around as if looking and inquiring into some passing object, then sailing through the water with a graceful, easy motion beyond sight.

*Brachionus pala* is also a lovely creature encased in a delicate transparent shell. It is considerably larger than the Skeleton or Whiptail, and is just visible to the unassisted eye. If you drop it in a phial of clear water and hold it up to the light, you can distinctly see it gliding through the water like a revolving white speck. A moderate power of the micro-



LARGE ROTIFER.

scope reveals its beauty. The shell is swelled at the sides, and narrow at the mouth, and round over the back, while the under side is flat.

Like the Skeleton and Whiptail, the head of the little Brachion is seen protruding from the upper part of the shell; but instead of one wheel this charming little creature has two, and nothing can be more lovely than a sight of these fast revolving wheels, like two beautiful crowns.

The reason the wheel looks so strikingly beautiful in *Brachionus* is owing to the long cilia which is longer in this genus than in other genera of this great family.

The foot of *Brachionus* is more curious than that of the Skeleton. It is telescopic, and the little animal has the most perfect control over it. He can draw it within the body so that it looks like a ball, and again quickly thrust it out and whisk it around in all directions like a tail. It has two short toes at the end which can be separated or brought together at pleasure. And he can firmly anchor himself by the toes and stretch forward, showing you the great length of the foot. Now he rolls from side to side without letting go his hold and performs other strange feats, and all the while the wheels are rapidly revolving, he has stopped his headlong career through the water and has settled down to get his supper.

Fig. 3 represents one of the largest rotifers with which I am acquainted. I have never been able to find a description or engraving of it in any work on microscopy. But it is probably well known to microscopists, for it has a wide range. I have found it in New Hampshire, New Jersey and Florida.

You cannot get a true idea of its graceful beauty from the drawing, as it is represented as it was seen in the live box with sufficient pressure upon it to keep it from moving, while serving as a model. And no engraving, however perfect, can give you any idea of its brilliant transparency and delicate coloring.

The play of the muscles and internal organs are plainly visible, and you can always tell what he has chosen for dinner. Diatoms and desmids form a



portion of his diet. His mouth is below the wheel. When he is hungry he anchors himself by his forked tail and sets his wheel in rapid motion, which makes a powerful current sufficient to bring quite large objects to his head, frequently too large to admit into the mouth. He will often repeatedly try to take a desmid entirely too large for his mouth, and his manœuvres are quite comical as he whirls it round and round, nipping it on all sides. You will see by looking at the figure that everything has to be swallowed or taken within the body before it reaches the mouth. While the desmid is within the body the rotifer has control over it sufficient to take it into the mouth if it is of the right size, but if it is too large he soon becomes disgusted and ejects it with a sudden move-

ment which sends it whirling rapidly away. And now he takes a smaller one and his jaws work vigorously a moment or two, when he swallows it almost entire, and we can plainly see the pretty markings and brilliant green color after it has passed into the stomach.

This large rotifer is plainly visible to the naked eye, and you will find it in both shallow and deep ponds, wherever water plants grow, during the months of July and August. I earnestly hope that some of our young microscopists of the C. Y. F. R. U. will become sufficiently interested to learn its name and send it to the WIDE AWAKE. Doubtless there are scholarly microscopists who will come to your aid if you ask.

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## FAMOUS TRIALS.

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BY BENJAMIN VAUGHAN ABBOTT.

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### X.

TRIAL OF MADAME RACHEL : — SPURIOUS COSMETICS.

THE Rachel whose trial I am to narrate is not the famous actress of that name, but a notorious cheat who lived in London about fifteen years ago. Her original name was Russell, but after her marriage her full name was Sarah Rachel Leverson, and she used the middle name "Rachel" in her business of selling perfumery and cosmetics. The story is that in early life she had unusually long and beautiful hair, but in a severe fever the doctor who attended her was obliged to order her head shaved; he, however, gave her a recipe for a preparation which he said would make it grow again. She recovered from the illness, and applied the preparation, when, sure enough, the hair grew wonderfully fast and long, owing, perhaps, to the virtue of the prescription, but more probably because of its natural vigor. However, she commenced making the article for sale, and advertising that she would restore the color of gray hair. Soon she added other articles to her stock in trade, and in time established an extensive business.

The law does not forbid making or selling cosmetics in an honest way, but it does forbid a dealer's cheating customers by spurious articles and false advertisements; and this is what Madame Rachel was at length tempted into doing. She published a pamphlet entitled *Beautiful For Ever*, describing a great many washes and powders for making the elderly look young, and the plain handsome. There were the "Circassian Beauty Wash," the "Magnetic

Rock Dew Water of Sahara," for removing wrinkles (remember that Sahara is a sandy desert), the "Alabaster Liquid," the "Youth and Beauty Bloom," the "Medicated Cream," for rendering the hair black or chestnut brown, the "Royal Arabian Toilet of Beauty," arranged for the Sultana of Turkey and various European royal brides, price one thousand guineas, and ever so many more. Above all was the secret, costly process of "enamelling" the countenance, whereby it could be preserved from all the changes of life, and literally be kept "Beautiful for ever." No doubt many persons were cheated into buying these nostrums, but one who suffered severely was a Mrs. Borradaile. She was a widow, elderly, credulous, and worth about £5000. She became a customer at Madame Rachel's store, and Madame Rachel asked her why she did not have her face enamelled and be made "Beautiful for ever." She asked, "What would be the cost?" Madame Rachel said, "A thousand pounds." Mrs. Borradaile hesitated about paying so much, and, to persuade her, Madame Rachel told her a story of a nobleman named Lord Ranelagh who had seen her and fallen in love with her, and was very desirous of marrying her if only she were a little handsomer. She even introduced her to some one who called himself Lord Ranelagh, but it is not certainly known who or what he was. However, Mrs. Borradaile decided to be "enamelled." Then began the "treatment." There were baths, and washes, and powders, but no improvement in beauty. However, the process was continued as long as the customer's money lasted. She paid Madame Rachel one sum after another until her little fortune of £5000 was gone, and ran



in debt to her, beyond, yet did not grow beautiful. At length she realized that she had been, as she herself expressed it, "a lunatic." She made a complaint against Madame Rachel, who was tried for "obtaining money by false pretences," and was found guilty and sentenced to five years' imprisonment.

To illustrate how ingenious the dealer was and how easily the customer was deceived, I may mention that while the cheat was proceeding, Madame Rachel brought to Mrs. Borradaile several love-letters, one after another, which she said had been written and sent by "Lord Ranelagh." They contained many mistakes of spelling, and Mrs. Borradaile expressed surprise that a nobleman should spell so badly. Madame Rachel explained that Lord Ranelagh had sprained his arm, and was obliged to employ an amanuensis, and the person employed was uneducated! This seemed perfectly satisfactory to the deluded widow.

American newspapers are full of glowing advertisements promising all kinds of benefit from various cosmetics and toilet preparations. Many of these articles, no doubt, have some merit, but in respect to several, when lawsuits over them have arisen, and the manufacturers and dealers have been summoned to tell in court how what they sold was made, they have been obliged to confess that the thing was a cheat and the advertisement a lie. In one instance a dealer began making and selling a toilet-water which he called "Balm of Thousand Flowers." It sold so well, that soon a rival dealer put forth a similar one called "Balm of Ten Thousand Flowers." The first dealer complained to the court that the second was imitating his goods and advertisements and so taking away his business. The court asked him what his "Balm" was, and what were the "Flowers" contained. He said that it was composed in part of honey, and that as the bees in gathering honey suck from every kind of flower in a large circle of country, he considered that his article was very truthfully called "Balm of Thousand Flowers!" When the judge heard this he declared he would have nothing to do with aiding or protecting either "Balm." He said that a dealer who is himself imposing upon the public has no right to complain of another for doing the same.

There was a similar lawsuit over a cosmetic which was advertised over the name of Fabian & Co., of London, as "Meen Fun," the celebrated Chinese skin powder for restoring, beautifying and preserving the complexion, patronized by her Majesty, the Queen. On the trial it was found that the article was not made in London, but in New York, and that Queen Victoria had probably never even heard of it. The dealers pleaded that it was the prevailing belief in this country (this was said about twenty-five years ago) that ladies' toilet articles of English or French manufacture were superior to any American, and they excused themselves on this ground for making

the false statement of their label. But the judge decided that they were deceiving the public, and therefore could not have the aid or protection of his court. There was also the "Gouraud Oriental Cream" case. The original name of the inventor was Trust; but he adopted the name "Dr. Gouraud" for his sign, advertisements and labels, and became so well known under this name that at length he had his name legally changed from Trust to Gouraud. His sons, however, kept the old name. Years afterwards they introduced an Oriental Cream, which they sold under the name Dr. Gouraud's Sons. Their father complained of this to the court. The sons said: "We are Dr. Gouraud's sons, therefore our label is perfectly true." But the court said that they were using the label for the purpose of misleading buyers of their Cream to suppose that it was the father's original preparation which they sold; and that this must be stopped.

Advertisements of medicines abound in the newspapers, and circulars boasting of the beneficial effect of some remedy and describing wonderful cures it has wrought are constantly appearing. To make and sell these medicines and advertise them thus is not unlawful, and even if the advertisement somewhat exaggerates the merit of the pills or potions which it describes, or promises more than they will or can perform, the dealer cannot be sued for this. The law considers that the public should exercise reasonable care and common sense, and ought not to believe all that advertisements say. When, however, there is any downright falsehood or cheating — when a person is induced to buy the article by gross deception which his using common sense or making proper inquiry would not enable him to detect, the merchant can be prosecuted. Even labeling a medicine falsely, by accident or mistake, may give rise to a lawsuit. There was once a lady who was taken violently sick, and nearly died, after taking some medicine which the apothecary of the village had sent to her as "extract of dandelion." The doctors and lawyers examined what was left in the phial and found it to contain belladonna, which is a violent poison. They inquired of the apothecary and found that he had filled the prescription from a jar labelled Extract of Dandelion, which he purchased from a manufacturing druggist. Therefore he was not to blame. They then inquired of the manufacturer and learned that by some mistake in labelling the jars, some containing belladonna had been sent over the country by mistake for jars of dandelion. They then brought suit. The unfortunate manufacturer said it was an accident; they meant to label the jars correctly and had no intention of selling a poison. But the court said that to mean well is not enough in selling dangerous medicines; dealers are bound to label them correctly. And the lady recovered \$800, to pay her for having been made so ill. The stories of these various lawsuits, if one were to read them, would show very plainly that there are many



mistakes and a great deal of exaggeration, deception and cheating in making and selling cosmetics and medicines, and that those persons are wisest who remain contented with their natural hair and complexions, and seek health by good diet and ex-

ercise, or by the advice and prescriptions of a trustworthy physician. Whoever trusts to advertisements in these matters will be likely to say, some day, with Mrs. Borradaile: "I think I must have been a lunatic."

## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

X.

A BOOK-REST. (Continued.)

**Y**OU now have the book-rest all put together ready for finishing. The first thing now to do is to sandpaper

it. For this you must buy some (o) or (oo) sandpaper, and go over the whole thing, being careful not to round the corners. You can accomplish this by stretching a piece of sandpaper over one of the little bits that remained after cutting: this will make a flat, firm surface, and will not be so liable to round the edges as if stretched over your thumb.

Before staining, you must make the brass springs to hold the leaves back.

Cut six and one half inches of your spring wire, (which should be about one sixteenth of an inch in diameter.) At a point five eighths of an inch from end, bend the wire into a right angle; two and one fourth inches from that point give the wire a turn round a small nail, or piece of telegraph wire (you cannot turn it evenly with your fingers alone); this is to give the wire a spring, and will enable you to lift the end of the wire on to the leaves of the book. Now turn the end of the wire in so as to make a rounded end. It will then look like *fig. 1.*

Make another spring exactly like this one: then cut off a piece five and one half inches long, bend to a right angle at a point five eighths of an inch from end. Then at a point two inches from angle, give the wire a turn as in the other set, and turn the end in. Make a second one like this of the remaining piece of wire.

To fasten these springs on to the rest, you must bore a hole one-sixteenth of an inch in diameter through the sides of the two *end uprights*, at a point just below the end of piece *D*. Insert the five

eighth inch ends of the larger set of springs into these holes, from the outside. You will find that you can lay the springs back when not in use, and that you can turn them out and lift the ends over the edges of your book, so as to keep the pages down when you do need to use them.

The smaller set can be fastened in the same way under lower *B* or under *G* if you prefer, at a point near the lower ends of *A A*.

If you are going to stain the book-rest, it is better to do it before fastening in the springs.

I think ebony stain goes best, and as you can make it yourself, it would perhaps be cheaper.

First you must get some logwood chips (about a teacupful); after boiling them in a pint of water for an hour or so, apply with an old brush (not the chips, but the decoction you have made by boiling the chips!). You can put on two or three coats of this, letting it dry each time.

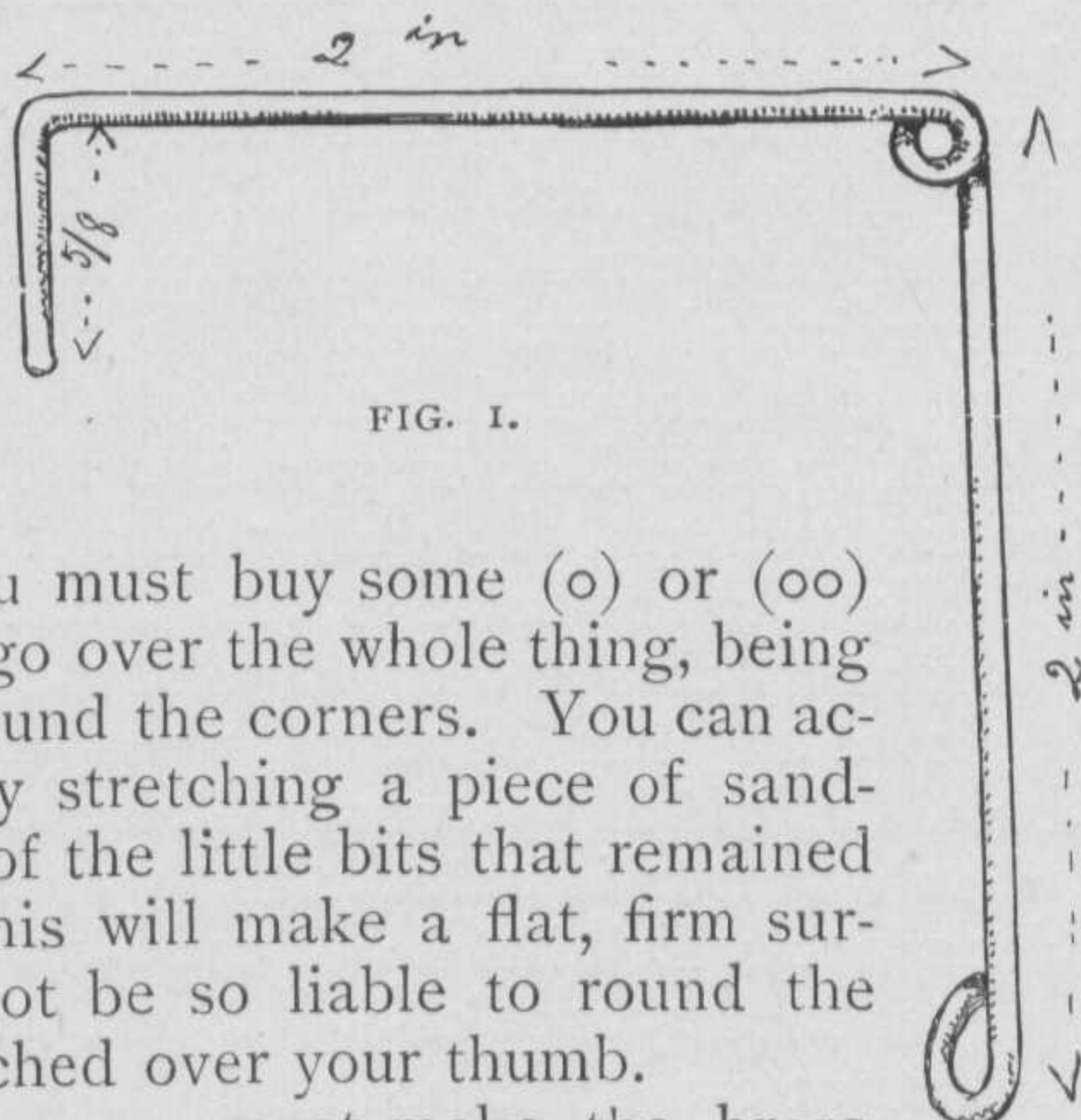
The next part will perhaps be the hardest. Get some iron rust or old iron filings, put these in strong vinegar or acetic acid and let it stand a day or two; if by this time the liquid is not of a reddish-black color, add more iron rust.

After the two or three coats of logwood, your wood will be of a dark yellow color, but this will immediately turn to a fine black when you apply the iron. Only one coat of this is needful, because it does not soak in. You might try the logwood and the iron on a small bit of wood first, and then you will see if the solution of iron is strong enough for a good black.

When the book-rest is *perfectly* dry, rub on some thin shellac with a soft cloth: this will make the dull finish now considered so desirable.

This book-rest is very convenient to use round the house at home, and is, as you have seen, very easy to make: but it is an awkward thing to pack away in a trunk if you are going into the country, for instance, or are travelling.

You may like to make another, if you have been successful with this one, and this time you can make it with hinges, so as to fold up compactly, by making the following alterations:





The front will be the same and the back also, with the exception of the uprights *E E* being hinged instead of screwed on to upper *B*.

The two *G*'s must have a one fourth inch hole bored one fourth of an inch from the back end, and a corresponding one bored through *E* about an inch from the bottom; these holes are for pins, on which the *G*'s may turn.

Instead of the six-inch *C* which joins the two *G*'s at a point one and one half inches from outer end (which, by the way, was left out in the figure last month), there should be two pieces seven inches long fastened with brads, at points respectively three inches and six and one half inches from outer ends of *G*. The piece six and one half inches from end *can* be left out — though it looks neater with it — but the back will shut closer without it.

Now put the peg through the *G*'s and into the *E*'s.

Draw the back of the book-rest from the front, put ends of *G*'s through the spaces bounded by pieces

*A, B* and *D*, and you will find that the *G*'s rest in the corners made by *A* and *B*.

When you want to shut up the book-rest, you must draw the *G*'s out, and turn them away from front on to the back of the *E*'s, and then shut the *E*'s up on to the *A*'s as in figure.

I don't think this is quite as pretty as the fixed book-rest, and there are of course other ways of changing the original plan which would be more ornamental; but this is very easy and will answer the purpose. You will find it good fun and good practice to experiment on changes in any of the designs given, after you have mastered the simple forms and the plain directions given in these papers.

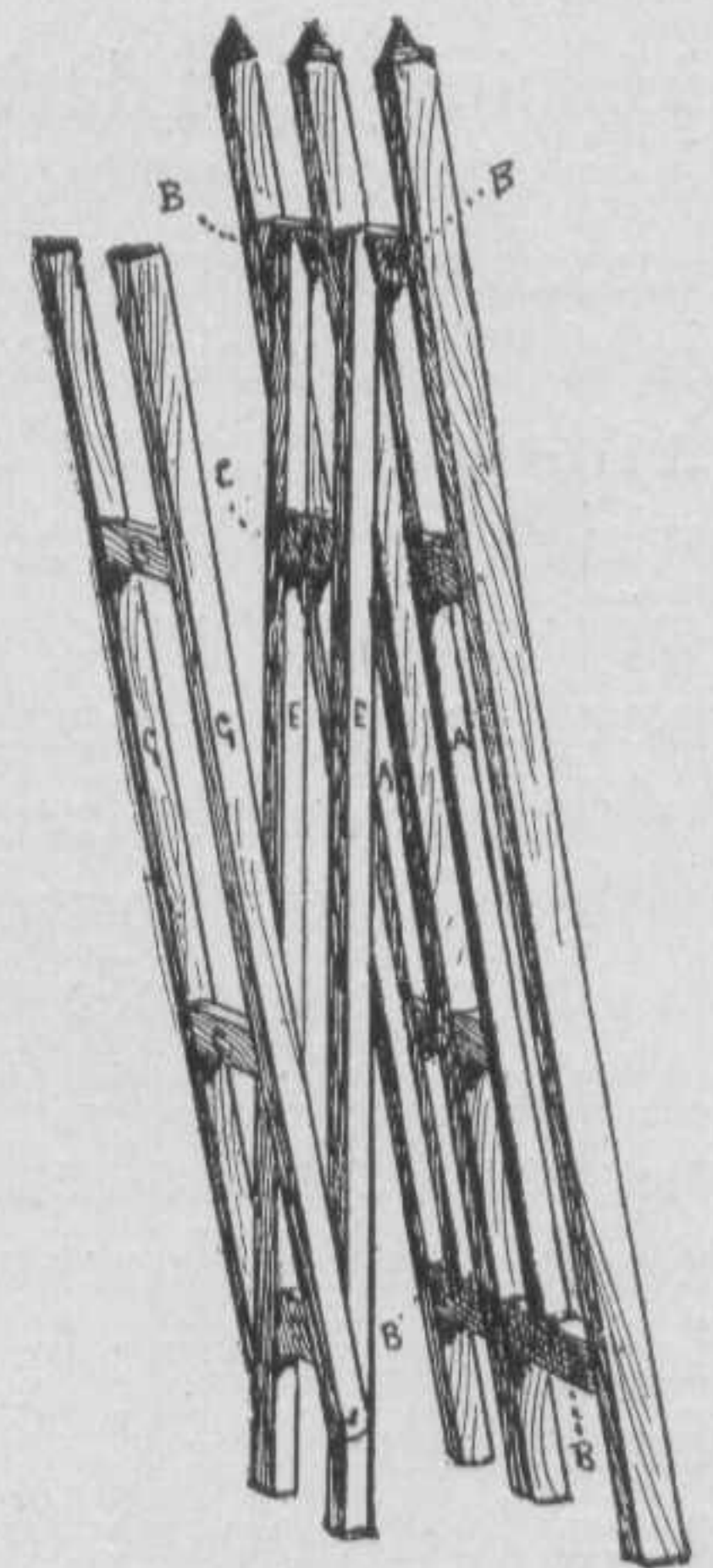


FIG. 2

## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

### X.

#### SUMMER COMFORT.

**Y**OU dread summer? Most housekeepers do, I believe; summer with its roses and dust, its sunshine and flies, its fresh fruits and hot cooking, its garden parties and the burden of entertaining company. Yet we were made to live through summers, and there must be some way in which it can be made endurable and welcome, even to a girl or woman who has the work and the cooking to do.

The house is clean by the first of May, let us say, at farthest, and the summer struggle must be to keep it so through the season.

One of the weak-minded women was lamenting what hard work it was to keep entries and sitting-room carpets from being tracked over with spring mud, and how the dust would blow in from the street, and cover everything so she might go round with a duster in her hand all day and it wouldn't do a bit of good; and then the flies seemed as if they would eat her up. The reason for her discomfort was not far to seek. Outside her house was an untidy broken clay path, the grass worn away, leaving bare patches which would furnish mud and dust for the year round, the scraper was rickety, the mat clogged with last week's mud, the door-handles in the sitting-room were sticky

from the children's fingers, and the breakfast-table stood, invitingly to flies, uncleared, with sugar bowl open, and cakes and syrup left in the plates, and the crumbs unbrushed from the cloth, although Mary was washing the dishes in the kitchen, for we could hear her. If the woman had set out to have flies and all sorts of summer plagues she couldn't have made better arrangements. Now it is hard to banish dust and flies, but it is possible to prevent them entirely. See that the turf around the house is sodded and quite up to the borders, and that the walks are well graveled or cemented. Don't make the wretched mistake of using coal cinders and ashes for walks, for they ruin shoes and dresses, track badly when wet, and look dingy and mean anyhow. Cinders can be used for a layer under gravel or sand, but should never come in sight.

Have a large mat outside the front door, no matter whether of coir, husks, or braided rags, but keep it clean by turning it over and beating with the broom when dry. A wide low scraper so placed that it is easy to use, and a second mat inside the entry door in bad weather, will lead people to make their shoes neat on entering the house. In summer sprinkle the walks and the grass plot to keep the dust down, and you will not be troubled with much in the house.

Before hot weather begins remove all woollen curtains, furniture and carpets that will hold dust.



Matting or a dark painted floor with rugs made from bits of carpet are nicer in summer than the most expensive carpets. A pretty cottage I once saw was laid with white matting at twelve cents a yard, with half-yard border of plain dark-red Venetian carpet which cost fifty cents a yard. Any dark old carpet will answer as border, or you can get pretty ingrain borders from seven to twelve inches or half a yard wide at twenty-five to fifty cents a yard. All fashionable summer houses have bare floors of inlaid wood, or plain oak, maple or chestnut, or stained and polished. A nice new pine floor stained red like cedar and varnished with shellac, is pretty, and any old floor, stained with burnt umber to a walnut color and finished in shellac is handsome enough to go with any furnishings. You can stain and polish a floor seventeen feet square in this way for one dollar and a half, doing the work yourself, which any girl in her teens is equal to. Instead of Japan varnish, always use shellac on floors, for it wears better and never dries sticky. Take a hair brush instead of a broom to sweep such polished floors, or you can wipe them every morning with a damp mop as easily as they can be swept.

If you want a cool house in the torrid days, look to its ventilation. It passes understanding how people can keep their rooms shut up as they do in summer. I dread to go into some houses in the village, for they are certain to have the rooms closed to keep out the flies, with perhaps a two-inch crack of a window left open, and the room smells like the interior of a pyramid with its stale air. To be cool or healthy, the house should have a draft through its entries from ground to garret; not a gale of wind blowing the curtains about, enough to set everybody sneezing, but a gentle steady change of air. If there isn't a transom to open over the street door, there ought to be, and it should stand open, together with a window or trapdoor at the top of the house, night and day except in storms. Air ascends naturally; give it an opening on the lower floor to come in and one up-stairs to go out, and it will rise, carrying all heat and smells and much dust with it out of the house. Flies will not live in a draft: they are delicate creatures and a strong air offends them. You never see houses like Judge Parsons, with wide windows and folding doors that stand open all season, troubled with flies.

If there is no transom in the outer door, the upper cross panel might be cut out and an openwork piece closing with a slide inserted to give air. Or the shutter door that can be locked and barred at night, leaving the real door wide with the garret window or one in the upper hall open will give a cool current through the halls. If all the inside doors have transoms or openwork ventilators opening into the entry and their windows down at the top and properly shaded, you will have a cool house the hottest day of August. And such contrivance will give the family refreshing sleep on sultry nights, and the usual

scenery be omitted of uneasy ghosts in white drapery wandering to and fro with palm leaf fans in their hands, exchanging laments and trying for a cooler place till daybreak.

You think about having door and window screens of course. The best writers on ventilation do not approve their use whether of wire or mosquito netting, because they do not allow air enough to pass through their meshes to properly supply the rooms. You know how close and warm a room with these screens always appears on coming from the outer air. With the upper window open and a strong current forcing its way through them, wire screens are not objectionable, but if you have a nice green yard between the house and the street, and no mosquitoes to dread, I shouldn't put screening between me and the fresh air merely to keep out flies, for flies can be kept out better in another way. It is much more desirable to have awnings for all the windows on the sunny side of the house. People imagine these are expensive for common folks, and so they are if you employ an awning maker to put them up complete. But when the striped awning stuff is seventeen cents a yard, and any woman with a sewing machine can make it up, and any carpenter can rig frames for them for twenty-five cents a window, no good house can afford to be without them. Awnings or no awnings, you must keep the sun off the glass if you want a cool house. Let the sunlight into rooms for an hour as early or late as possible, for they need it winter and summer to keep them pure; but shut the blinds before the day grows hot. If there are no blinds, have cotton shades for the outside of the window, or as some housekeepers advise, lower the top sash and draw the roller blind outside to hang over the glass, for it condenses the rays as they pass through, making the room doubly hotter. Even on a winter day, if you sit in the sunshine which falls through a window, the heat soon becomes unbearable, because the glass increases its power. So on warm July days you want the rooms swept and in order and the blinds closed before nine o'clock in the morning. A very comfortable fashion I saw in a seaside hotel was to hang curtains of common chintz or shirting at chamber doors so that they might stand wide open and airy, with sufficient privacy most of the time.

Now about flies. I can tell you from experience that it is perfectly unnecessary to have even a dozen flies all summer. The neighbors darken their houses and shut themselves up and half suffocate behind screens for fear of these plagues, but I never do either, and rarely see a fly. They don't like to come and see me, for they never get anything to eat. One law in this household is executed with the fidelity of a dragon, if dragons are faithful as supposed — and that is, to allow no crumbs or smears, and no trace of eatables about the place, outside of the proper rooms and proper hours. Where there is no food there are no flies. You have got to choose between taking strict care to starve them out, or have twice as much



trouble with their presence. Yes, I've lived through the usual worry of babies with sticky fingers and children who wanted something to eat between meals, and know what it all means. I don't remember whether I kept a wet sponge to wipe fingers and doorknobs tied to my apron strings or not, but it was something like it. In the first place there is no need of children running about with smeary fingers, and slices of bread and butter, for they can learn before they speak to eat in proper places, and to have hands washed as soon as they are through. I have seen a baby worry as much because his hands were not washed as his nurse could to see him so. Then sticky doorknobs and shelves must be washed anyhow, and it is just as easy to do it first as last, after they have drawn a feast of flies. A smear of sweets on a doorknob, a fragment trodden into a carpet, a dust of sugar or drop of sauce on a pantry shelf is enough to feed a dozen flies and they are alert to take advantage of it. No food is to be eaten or kept in the china closet, which is the place for dishes and table ware only: all eatables in the pantries are to be kept closely covered in clean plates or jars, all crumbs wiped or swept up as soon as made, and no food or scraps are to stand in the kitchen uncovered when not actually in use. Is it necessary to leave cups of sugar about with flies taking toll, or gravy with two or three swimming in it, or the freshly baked cake for the whole swarm to parade over, when it is so easy to cover things with saucer or cloth? In the dining-room, as soon as the table is set, it should be covered with the fresh white netting kept for the purpose, and the moment the family rise, let it be replaced till you are ready to clear things away. All food should be set away in icebox or pantry under cover, tablecloth shaken and the crumbs brushed up before the dishes are washed, which should be soaking all the time. Then air the dining-room thoroughly, so that the odor of food may leave it, and let the windows stand open between meals.

Half the heat and worry of cooking and kitchen work may as well be saved as not, even in summer. I used to work very comfortably in our country kitchen, by taking the old-fashioned windows out bodily, leaving the wind to draw through freely and temper the heat of the large stove. The model kitchen will have swing windows, to let all the air in possible, but till people have sense enough to build them, we must manage cooking with as little heat as we can. Plenty of families light the range but twice a week all summer. On washing and ironing days doing the baking and roasting for the week. The small kerosene stoves with ovens will do all the cooking and ironing, with little heat and expense. And I advise you to set one of these down as an indispensable help. A double stove with three cooking places costs twelve dollars, and will rob summer cooking of its terrors. Three gallons of kerosene at fifteen cents each, will do all the cooking and ironing of a family for a week, and many women use but half

as much. There is the comfort of abolishing all dust and trouble of making fires, or waiting for the stove to heat, and the moment the last dish is lifted from the stove, the fire is out and all is cool in five minutes. As for washing, that can be done in summer without any fire at all. New soaps are made which cleanse clothes and whiten them thoroughly without the aid of hot water. I have used them for over ten years, and have whiter, sweeter clothes than the washerwomen with all their scalding and perspiring. Any good chemical washing soap will cleanse things beautifully without hot water, if they are soaked in sunwarmed suds, and bleached for an hour in the hot sun before rinsing. Leave the water in tubs to warm in the sun, the day before, and put the clothes to soak at night with plenty of soap, using both more soap and more water than is usual. Wring them out of this and put them through the machine in tepid water, rubbing all soiled places lightly with soap, and laying them wet on the grass in the sun. As soon as dry, have them rinsed and hung out. No matter if they are a little yellowish, the sun will whiten them for you. This mode is practised in England among the cottagers, some of whom are the neatest women in the world. And Southern housekeepers tell me it is the way washing is done in the Gulf States. When you have the strong sun to do the work, with chemistry stronger than any soda or bleaching powders in the world, what is the use of heating the house and making it horrible every Monday with slops and steams and smells unmentionable? You will find no stains or grime able to resist sunshine. If they do not disappear at first drying, dip them into clean weak suds or even clear water, and bleach again, wetting them several times as they dry. On a rainy Monday, which set half the housekeepers in town fretting, I have seen people take the clothes from the soaking tub and lay them on the grass for the rain to wash, and when it was over rinse and hang them up, clean and dazzling white as no laundry could make them. It was using sense and information together. If you can have sun and rain do your work for you, why waste your own strength and time over it?

If the ice gives out and you want to cool butter, wrap the roll in linen in a clean unglazed earthen flowerpot, and tie the whole in thicknesses of old flannel or blankets, wet them thoroughly, and set in the shade, in the wind, in a shallow pan of water. The evaporation from the wet flannel and porous clay will cool the contents remarkably. All water for drinking or cooking should be filtered, for pure water is growing rarer and rarer with the wasting of the brooks, and bad drainage of streams and wells. Filtered water in large jars of stone ware kept wet in an airy place will be refreshingly cool without ice. The Mexicans and Spanish settlers in the Southwest, cool their drinking water in such jars as their fathers on the Continent did before them, and our people in New Mexico and Arizona are learning to prize the



great vases and ollas as much as Yankee bean pots. Flowers and boughs assist in keeping the house comfortable as well as delightful, for the flowers drive flies away by their perfumes, and large jars of green fern, alder, branches of willow or any thick-leaved tree kept in water will cool a room by the moisture they give out. The English peasantry know this, though they cannot tell the philosophy of it, and in old times the custom was to set tubs and pails of water full of green boughs about the stone floored cottages for coolness. The water should be changed every day, and have a little borax or charcoal to keep it sweet. I think you will like this excuse for keeping your rooms full of fresh green things and fra-

grant flowers. The only things of which we cannot have too much. The less furniture in summer rooms the better, as leaving them more spacious and airy. With a trim house which every sweet air can wander through at will, its leisurely spaces, its freshness of sprinkled leaves and flowers, its softly lowered lights making rooms and chambers pleasant, kitchen troubles reduced to their least heat and effort, with light nourishing food of soups and stews, vegetables cooked with gravies, giving us the essence of meats without bulk, fruits, berry-cakes, puddings and deep plain pies, salads and velvet creams, we find that great heats can be borne tranquilly without loss of comfort or strength.

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## HEALTH AND STRENGTH PAPERS.

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BY PROF. D. SARGENT.

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### X.

#### BATHING AND SWIMMING.

**A**FTER exercising vigorously rub yourself down with a dry towel or take a tepid sponge bath.

In cold weather, unless you perspire freely and have a warm room to dress in, it is better not to dabble with water of any kind after exercise, but to rely upon the dry rubbing. In warm weather the skin is more active, the perspiration is easily excited, and a cool sponge bath after exercise is not only refreshing, but it also tones up the system, and prevents taking cold. Under the most favorable circumstances the bath should never be continued until there is a feeling of chill. After exercise, in many cases, the use of the wet towel followed by the dry rub is preferable to bathing of any kind.

The bath for cleanliness better be taken in warm water with castile soap.

The best time for the bath is in the evening just before going to bed, and two baths a week under ordinary circumstances are enough to keep the skin in a healthy condition. In the summer time baths may be taken at the seashore, or in rivers, ponds, lakes, etc. Salt water baths are excellent for their tonic or bracing effects, but should not be relied upon for cleanliness. In fact, it is well to follow a sea bath with a gentle douche or sprinkling of fresh water.

The best time to take a sea bath is in the middle of the forenoon, or afternoon. After having entered the water do not come out and stand in the wind with your wet clothes on, but keep paddling about for fifteen minutes or so, and then come out, and rub down vigorously and dress.

When your lips grow pale and your teeth begin to chatter, the bath is doing you no good, and if longer continued may do you positive harm.

The swimming bath affords a fine opportunity for exercise as well as for cleanliness. As a means of developing the chest, increasing the breathing capacity, and strengthening the muscles of the arms, back, and legs, nothing could be better than the regular practice of swimming. Unfortunately the want of a favorable opportunity keeps many from learning or practising the desirable art.

At the seashore the water is too cold and too rough; in rivers is likely to be muddy, and in ponds or lakes is too often weedy or rocky.

A swimming tank or pool is the safest and most desirable place to learn to swim. Here everything is arranged for your advantage. The temperature of the water, its depth, the style of bottom, accessible landing places, and some one near to correct your faults and to lend you assistance in case of need. If you have sufficient courage, however, and a determination to learn, a swimming tank can easily be dispensed with. Water free from weeds is all that is necessary, but as a precaution against accident, a place free from sharp stones, holes, shifting sands, and a muddy bottom, had better be selected. Having decided upon a place, get a friend to accompany you, and visit it about eleven o'clock in the forenoon, or three hours after meal time.

Do not sit by the water's edge, and wait to cool down, but off with your clothes at once, and plunge in.

Before attempting to swim in the water, you should learn the movements on land. This will give you confidence, and enable you to fix your attention upon



the one thing which you want to do. If you have neglected to prepare yourself by taking these preliminary exercises, you must do the next best thing; that is, learn the arm and leg movements separately.

Wade out until the water comes up to your neck, then face the shore. Now shoot the arms directly forward, holding the hands together with the thumbs upward, then turn them palms downward, and allow them to rest a second or so in this position—in the meantime taking a couple of steps forward with the feet on the bottom—then turn the thumbs downward and sweep the arms in a circle to the rear. Now bend the elbows and bring them to the sides of the body with the hands together in front of the chest. Take another stroke and continue practicing as directed.

After trying the arm movements some twenty or thirty times, approach near enough to the shore to allow the hands to just touch bottom, with body stretched out and arm extended. While in this position bend the legs, straighten the feet, and spread the knees as far apart as possible; now curl the feet at the insteps, and extend the legs forcibly, at the same time bringing the knees and feet together.

If your friend is with you, place your hands on his hips, and let him walk into deeper water. Now bend and extend the legs as above.

If he is a swimmer, let him start off while your hands are still on his hips, and you can swim behind with your legs. After having gained a little confidence in this way, you can try to swim alone, with a fair prospect of success.

Wade out again, until the water is up to your neck, then shoot the arms forward as before. At the same time spring off from the bottom with your feet, and sweep the arms around to the sides.

Now draw your hands in under your chest, and as you do so draw up the legs, being careful to spread the knees, and not bend them under the body.

Shoot the arms forward again, at the same time extend the legs vigorously, doing the movements as described. If you keep the head well back, breathe easily and regularly, and use the hands and feet together as I have told you, there is no reason why you should not swim. If you fail to keep your head above water, however, you can try another device.

When you go home get an old jacket or loose coat, and sew a stout loop on the back of it just between the shoulders.

Then get a pole about eight feet long—an old rake-handle will do. The next time you try to swim, take this pole and jacket along with you; pass the pole through the loop in the jacket, and let two of your comrades hold the ends. With this assistance you will find no difficulty in keeping afloat, and can soon learn to depend upon yourself.

There are other aids to swimming, such as the life-preserver, the belt and the plank, but there are objections to the use of all of them.

After once having learned to swim in the ordinary fashion, a dozen ways will be suggested to you, such as swimming on the sides, on the back, feet foremost, under water, etc., all of which can be easily mastered with a little practice and perseverance.

## DAYS AND NIGHTS IN THE TROPICS.

BY FELIX L. OSWALD.

### CHAPTER IV. (*Continued.*)

#### THE OLD HERMIT.

HOW much a day can you make at your business?" asked the captain.

"All the way from ten cents to ten pesos" (about twelve dollars), said the hermit, "and that's the best of it; the fun is worth more than the gold itself. A good miner can find here enough to support himself, and has also a chance of making his fortune. Why, the Indians on the Rio Madeira washed out a treasure of gold near an old mining-camp that had been abandoned for years, and there is no saying what I might find yet."

When we had repacked our mules and were just going to leave the hermitage, a mountain-deer

bounded across the road, and I had already leveled my gun when I saw that the creature wore a red collar and was probably one of the hermit's pets. It ran up to its protector, and, like a fawning spaniel, rubbed its nose against his bearded face.

"Hello! that's the tamest deer I ever saw," remarked the captain.

"Yes; but I do not like its coming so early," said the hermit. "There's something wrong; some wild animal must have chased it—or something worse."

"How do you mean?" I asked.

"I do not like the looks of the weather," said he, with a glance at the clouded sky; "it's too warm for this season of the year; I am afraid we are going to have a storm. You had better stay here to-night."

We thanked him for his kindness, though we could not accept his offer. The inspection of the mining-



camp had delayed us longer than I liked, and some twelve miles further up stream our guide knew an old mission-building which we hoped to reach before night.

But the weather was, indeed, oppressively warm. Not a leaf stirred: all was quiet; only the tree-cicadas kept up their monotonous chirp. A lead-colored haze had overspread the sky so gradually that it was impossible to tell the direction of the wind till we had crossed a spur of the low hills that had shut off the view of the river valley. When we reached the opposite slope of that ridge, a sudden gust of wind from the southwest swept through the treetops as if the Spirit of the Woods had awakened from its deep slumber. We could hear the moaning of the wind a long time before it reached us, and when it passed over our heads its voice was answered by the cries of innumerable birds, and from the far interior of the woods by a strange flute-like sound that repeated itself at shorter and shorter intervals.

"Listen," said I, "is that a bell bird?"

"No; a troop of spider monkeys," said the guide, "and I am afraid it's a bad sign; that's a danger signal of their leader, or maybe of the monkey-king himself."

The Indians of Southern Brazil tell many wondrous stories about the "wood-walkers," as they call the spider-monkeys. Every troop, they say, has its captain, and the troops of every district are under the command of a king whose call is a signal for his subjects to follow wherever he goes, even if he should enter a human habitation; and he who could catch that king or imitate his call would soon be able to capture all the spider monkeys in the country. So much seems certain, that all the larger troops have a leader who warns them against dangers and guides them on their foraging expeditions. But our attempts to imitate their assembly call proved unsuccessful; the troop moved in the opposite direction, and their cries soon died away in the distance.

"They are in a hurry," said the guide; "I wish we had reached that mission."

"Is there anybody living there?" I asked.

"No; it's an empty building," said he, "but with a good roof and walls like a fortress—the very place for a rough weather camp. It would make a first-rate farmhouse, but the people are afraid of the abbot."

"What abbot?"

"Oh, one of the monks who built the place. They say that his ghost has been seen by many persons, and some of them have asked him what he wants, but it seems that he cannot understand them."

"No wonder," remarked our black cook; "I have noticed that myself. The people in this country cannot talk plain at all."

"Well," said the guide, "we'll make him understand that we are going to camp in his convent, mules and all. I would rather see a good many ghosts than roost in the woods this night."

It was about four o'clock, but the air was as dark

as if the sun had set, and where the trees stood close together, we could sometimes hardly see the trail of our road. But the wind had awakened the voices of the forest: wild pheasants called from the thickets, parrots screamed on all sides, and swarm after swarm of glittering Iris crows flew croaking through the tree-tops; and we noticed that they all flew from left to right, and like the spider-monkeys, seemed to be in a great hurry.

"I believe I know where they are going," remarked the Captain; "straight north, to the foothills of the Iconzo Mountains; they seek shelter and seem to know that there is no time to be lost."

Our guide suddenly drew rein and signalled us with his hand to stop and keep quiet for a moment. There was a rustling in the bushes, and presently a large puma leaped into the road and then stood still, turning his head as if he were listening for something—perhaps for the moaning of the wind—for when the next breeze passed through the treetops he bounded away and soon disappeared in the bushes.

"Gone in the same direction," said the captain; "that south wind is brewing mischief. How far are we now from those mission-buildings?"

"Still nearly four miles," said the guide.

"Then we are in for it, unless we mend our pace," said the captain; "that weather looks as if it was going to break out every minute."

Benny at once leaped from his mule. "I can run a bit," said he; "yes, please, let us try how fast we can go."

"Hallo!" laughed Juan; "what makes you be in such a hurry all at once? are you afraid that puma will get after you?"

"No; but we have to reach the mission before dark," said Monito; "I want to see that ghost. So here goes."

We set our mules a trotting, and now and then followed Benny's example, who ran bravely afoot, and even kept ahead of us whenever the road went uphill. There was, indeed, no time to be lost; the woods turned darker and darker, and occasionally a blinding flash of lightning darted across the sky; the advent of the storm was evidently near at hand.

"The sun is down, I guess," remarked the cook; "we had better hunt up some kind of shelter before it gets pitch dark."

"No, no; I'm sure of my road," cried the guide, "please keep up; the place isn't far now; we would have reached it before this if my mule were not so heavily loaded."

"Get on my horse, then," cried the captain, and let all the rest of us dismount and run for it, or the weather will overtake us sure."

The mules needed no urging, and amidst the groans of the cook and the shouts of our mischievous youngster the race against the storm now became a steeple-chase through the darkening woods. A sudden blast of a chilling cold wind filled the air with



a whirl of flying leaves that still thickened the darkness, but our guide only increased his speed. Keep up, Caballeros! — Hallo! — I knew I was right," he shouted, when he at last leaped from his horse, "here's the old convent-garden — forward, now, and we are safe!"

## CHAPTER V.

## A THUNDER STORM.

A wildering hedge barred our way, but regardless of briars and brambles, we plunged through, rushed up the terrace of the convent-court and in the next moment dragged our trembling mules into the hall of a massive stone-building.

In the course of the last two hours a wide and continuous swarm of birds had passed over our heads, but if we had thought that all the creatures of the forest had left their homes we would have been much mistaken. For the next ten minutes the woods around us were a howling wilderness in the literal sense of the word; an earthquake shaking up a city full of frightened inhabitants could not have caused a worse uproar. Panthers, palmcats, monkeys and hundreds of birds screamed out in the wildest excitement, till their voices were drowned by the crash of the thunder storm that suddenly burst over our heads and drove us helter-skelter into the interior of the building. Opposite the front door there was a large hall from which numerous side-doors opened into the cells or sleeping rooms of the old convent, and into one of these side-chambers we hustled our baggage and blessed the old monks who had built their house of such bomb-proof masonry. The blasts of the gale seemed to strike the building from every side at once and with a fury that increased with every minute till the noise became almost deafening. In the glare of the lightnings that flashed around us like fireworks we saw our mules standing close together in the furthest corner of the hall, but it was not the thunder

that frightened them nor the rain that dashed against the door in gusts of fitful fury, it was the roar of the storm and the almost incessant crash of falling trees, resembling the discharge of a vast battery of gatling-guns. There were moments when we were actually unable to hear our own words, but in the short pauses of the storm we heard all kinds of voices: a plaintive howl, a many-voiced chattering in the garden, and the exultant screams of a flock of wild geese in the river-bottom. There are animals that seem to delight in a storm; waterfowl, as well as seals and dolphins, enjoy the rocking and tossing of the waves, and often expose themselves on purpose to the breakers of a storm-beaten reef. The chattering screams in the garden,



A TROPICAL TORNADO.

too, sounded like cries of merry excitement, rather than of fear, and proceeded from a bevy of marmosets (squirrel-monkeys) who had congregated in the top of an Euphorbia or Spanish gum-tree. No storm can break a tree of that sort. They seemed aware of that, and the swaying of the branches did not trouble them.

(TO BE CONTINUED.)



## WHAT TO DO ABOUT IT.

INQUIRER asks: "What is the height of the picture line?" No precise rule is given, farther than to hang pictures so that the lower half will be opposite the eye, where the whole can be easily viewed without lifting or bending the head. In exhibitions where two or three rows of pictures must be hung to have space for all, naturally the best are hung on this line, and those of less consideration in the rank above or below it.

CHARLES W. "I would like to have you tell me what the quarrel was that caused the War of the Roses. My father can tell me what Shakespeare says, but no more." The Yorkists were the party belonging to the third son of Edward the Third of England, the Lancastrians of his fourth son, the Stout John of Gaunt, who coveted the crown. His son Henry Bolingbroke, raised an army, obliged Richard the Second to give up the throne to him, and was crowned King Henry the Fourth.

DORA J. D. "In the April number you told a girl of thirteen she could earn money by raising flowers and seeds. Please tell me where and how these can be sold, and recommend some good practical book, with pictures, if possible, telling about flowers which can be raised in a common garden, and the best method of culture." Vick's *Flower and Vegetable Garden* is probably the book you want, which is mostly devoted to flowers, and has colored plates as well as many wood cuts. Henderson's *Practical Floriculture* is a delightful book for older cultivators, and will give you a good idea how to sell flowers and what prices to expect. A girl can either raise nice bedding plants like geraniums, verbenas, and choice coleus to sell at her home, or she can send cut flowers like roses, heliotrope, carnations, and violets boxed to the town florist to sell for her.

2. "I can get some kinds of wild flowers here. Could I sell early violets?" Good plants of fine wild flowers, well rooted in baskets with plenty of their native earth, find sale among flower fanciers. I think I should particularly like to buy a fine scarlet lobelia, or white wild honeysuckle, pink orchid or clump of mayflowers ready to blossom, and a good many other people have the same taste. Rooted plants of wild blue and white violets, in small fruit baskets, would sell in spring in city streets, but the plucked wild flowers wither too soon to be profitable. Go to the nearest greenhouse and see how the florist arranges the little spring baskets of fern and moss for sale, and you will know how fresh and delicate such things should be.

A. BOSTON. 1. "Can you tell me two or three pretty trios for young ladies to sing, something of the

ballad style? The voices are first soprano, second soprano and alto." Tilden's *Trios for Female Voices*, published by Ditson & Co., may have what you want. In *Pan Pipes*, a book of old songs newly arranged by Theodore Marzials, the English song writer, you will find several things which with some knowledge of music you can arrange for three voices. Hullah's *Part Songs* and the old singing books of the time of Lowell Mason and George James Webb have such songs as you want in the best taste.

2. "Can you tell me of some vine which grows very fast and does not need rich ground, and not much sun? I want to plant some vines around a summer-house so that it may be covered quite quickly as it is not very handsome in itself." Try a root of ampelopsis or Japanese creeper, which is the fastest growing vine known in this country. The Virginia creeper grows fast and in almost any place, but if you want vines to grow quickly you must give them rich earth, and plenty of water — street scrapings and slops from the house. A root of madeira vine will cover a large space with its shoots in a single season and will look well with either of the others. Plant something on each of the four sides of your summer house if you want it screened next season.

3. "Does German or English ivy grow fastest, and which is easiest to cultivate? I have heard of an ivy which grew fifty feet in one winter. I should like to have such an ivy as that. Will any sort of ivy grow well without much sun?" The common German ivy of our sitting-rooms grows most successfully in this country, though the dark Irish ivy makes a richer screen in time. The ivy which grew fifty feet in a season was a German one, and was well tended, had plenty of rich soil and water. Ivies like a little old pounded mortar with their earth, and will grow in sun or shade.

PRUE. 1. "I have a pot of carnations, some ivy and pansies in my window. Lately the carnations have been covered with a small green bug. It does not seem to eat the plant, nor does it wither. The other plants are not touched. They are in a window where they have the sun all day. Can you tell me how to get rid of them, or are they doing no harm?" Insects and plants do not thrive together, as you have probably found by this time. The air is too dry for your plants, and you want to put them in a tub and wash the leaves and stems with a soft brush or chicken wing and plenty of warm soapsuds; then keep a little water in the pot saucers, spray the foliage often, and evaporate water on the stove or in the water-front of your furnace, to make the air of the room healthy for the plants and yourself. THE WISE BLACKBIRD.





## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### XI.

JOHN RUSKIN.

THERE are two thin volumes—thin as to the mere material substance, I mean—which every young girl would be the better for reading; which ought to have a handy place in her chosen, very own library. Both are by the author whose name stands above; and their titles are *Letters to Young Girls*, and *Sesame and Lilies*. The first explains itself; the other provokes the question, “What is it?” or “What does it mean?”

His titles are mostly odd, and as enigmatical and picturesque as they are odd; but they always have a hidden meaning. Ruskin is one of the sincerest writers living; and if he does go far out of the way for one, you may be sure that he has a purpose in so doing, and will make it clear. But more about this by and by. The man first, his words and titles afterwards.

John Ruskin has been ridiculed for being such an egotist; for saying in such a dogmatic manner so much about *his* opinions and *his* work; yet who can help wishing that he had carried his egotism far enough to have written an autobiography, and written it very fully, too? What a rich, rambling narrative it would be!—brimful of art and book criticism, enthusiasm over flowers, pebbles, mountains, running water, and a great deal, but none too much, about his own personal life. There are already bits of his history scattered through his books; you come upon them in the most unlikely places, for he is a man who does and says eccentric things; but you have to pick them out and fit them together yourself, and then you find that whole chapters are wanting.

The place of his birth was London; the date February 8, 1819. He seems to have been a solitary little lad, and was brought up in rather a rigid way. He had Walter Scott’s novels and Pope’s translation

of the *Iliad* for his only reading on week days; and on Sunday he had *Robinson Crusoe* and *Pilgrim’s Progress*, and his mother made him learn long chapters in the Bible by heart, and read it “straight through, aloud, hard names and all, from Genesis to the Apocalypse, about once a year.” She gave him his daily lesson, but never more to learn at a time than she knew he could do, and he was kept in until it was done, whether Bible or Latin grammar. From the time he could read he was required to be persevering and thorough, and her method made him so conscientious that he said he never thought of doing anything behind her back that he would not have done before her face. It was a good beginning.

So his masters were Scott and Homer, therefore he had to look up. But the kind of writing which formed his style was the strong, vital Saxon of the Bible. He said he owed much of his general power of taking pains and the best part of his taste in literature to that Scripture discipline, “patient, accurate and resolute,” and (here is a hint for you)

once knowing the 32d of Deuteronomy, the 119th Psalm, the 15th of 1st Corinthians, the Sermon on the Mount, and most of the Apocalypse every syllable by heart, and having always a way of thinking with myself what words meant, it was not possible for me even in the foolishlest time of youth to write entirely superficial or formal English.

You can see what manner of child he was, by his saying that almost as early as he could remember anything he used to have great enjoyment in watching from the window in their London house, “the dripping from the water-pipes”—what a trivial, uninteresting sight to most children!—and that when he went to see his aunt at Perth, the thing that filled him with delight was her garden.

Sloping down to the Tay, with a door opening to the water, which ran past it clear down over the pebbles three or four feet deep, an infinite thing for a child to look down into.

One of the first events he could recall was being



taken by his nurse to the brow of a crag over Derwentwater. And he says:

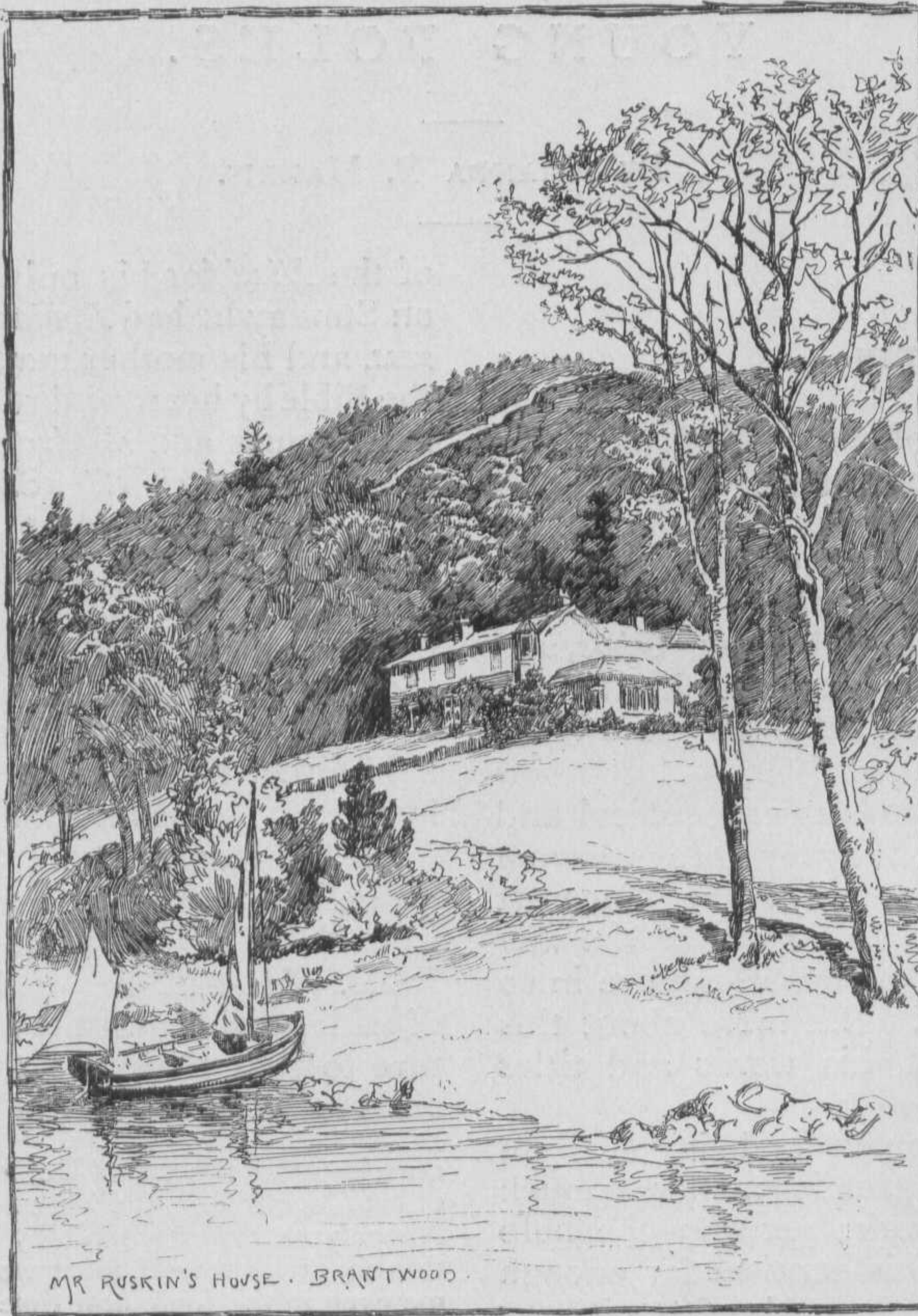
The intense joy mingled with awe, that I had in looking through the hollows in the mossy roots, over the crag into the dark lake, has associated itself more or less with all twining roots of trees ever since.

Happy child! Happy any child who is born with such tastes as that, or who comes to them by training; for there are open to such an one the infinite, the inexhaustible delights of the world out of doors, the common world around us all, which belongs to us all, but which can never be common to one who loves it.

Years after, when he came to write, he put all his

fine picture gallery that he could visit. The child four or five years old, when these outings began, had a seat on "a little bracket in front," and so, "at a jog-trot pace, he saw all of the high roads and most of the cross ones of England and Wales, and great part of lowland Scotland."

After years of this kind of education of his eyes, he went up to Oxford, where at twenty-one he won a prize for a poem; at that period he wrote some very attractive poetry, but ceased from it before he was thirty. In 1843, the name John Ruskin became suddenly known far and wide, and so well-known that nobody could forget it, through a volume called



THE HOME OF JOHN RUSKIN.

rapture about the clouds and mountains, the grass, and mosses, and pines, water and wayside flowers into his books.

His father was a wine-merchant, but he had such a rare love for pictures and rare discernment of what was true art that he ought instead to have been a painter. He used to hire a post-chaise for two months in the summer, and, taking his wife and this only son with him, go the round of his country customers, always planning so as to stop over night at some town near a nobleman's house where there was a

*Modern Painters*. Five with that title were eventually published, although seventeen years passed between the first and last of the series. This is the work on which some critics claim that his reputation rests; but those which are of greater interest to the general reader are *Seven Lamps of Architecture* and *The Stones of Venice*.

Never before was architecture shown on paper in such a fascinating way. His pages are pictures, and his mode is as original as it is charming. The lamps are "the Spirits of Sacrifice, Truth, Power, Beauty, Life,



Memory and Obedience," and there are great principles which affect human conduct underlying what he says. To know how to make use of them one must read for one's self, and see what the truths are, and with what splendor of language he clothes them. How he accumulates words upon words! Some of his pages answer in point to what eloquence is from the voice. Think how those who listened to Webster and Choate were spellbound; how people forget themselves in hearing the golden words of Wendell Phillips, and you will know what I mean.

Ruskin has been severely criticised for this very richness of words, and some of his writing is certainly the most exuberant prose in the English, unless we may except that of De Quincey; page after page of description of wide landscape, or of so small a portion of one as a group of pines or even a bed of moss, without a period to break the passage; with words of glowing admiration enough to take one's breath away. But in some of his later writings he says that every word of that earlier composition was "weighted with care," and some of it was written four or five times over; and "the use which I now have of language has taken me forty years to attain." It is a style of his own, with a glow like clouds at sunset, a brilliance like flowers, or birds of bright plumage, or gems of price. He so loves Nature and true art that no words are too precious for them.

He has taken great pleasure in lecturing, and so bringing his views on art and reforms and other subjects before all classes of people; and perhaps, as Tennyson once said of him, he "has said many foolish things;" and as somebody else reported one of his lectures, he often "flew rather over the people's heads." Nevertheless, those very people heard a great deal that was new and true which set them to thinking; he certainly put ideas into their heads if he did sometimes fly above them. He has a way, and his books have a way, of opening men's eyes; and both the man and his writings have impressed many as the *Seven Lamps of Architecture* did Charles Kingsley, who called it noble, manful, godly.

Most of his lectures and notes are on art and architecture; he has also written as well as done a great deal for working men. The book entitled *The Crown of Wild Olive* abounds with strong advice coming straight home to everybody. He always speaks for good work by whomsoever done, and "work is only done well when it is done with a will." It is in this volume that he gives his idea of what a child should be.

The first character of right childhood is that it is Modest. . . . And it is always asking questions and wanting to know more. The second is to be Faithful. The third to be Loving and Generous. And because of all these characters lastly it is Cheerful.

You never can tell what truth or good word or passage of exquisite tenderness and piety you may come upon in turning a page of Ruskin.

A series for the working classes is *Fors Clavigera*;

which I refer to especially, because it was in these letters with the strange title which it takes more than one page to explain, that he proposed to form the society which now exists near Sheffield, called "St. George's Guild." He has given a great part of his money to it, and fitted up a free museum and library, and his purpose by means of it is to have the poorer people live sweet and noble lives. They are to help others when they can, "seek to avenge no injury," "strive to produce what is beautiful in form and to become what is lovely in character."

The girls to spin, weave, and sew, and at a proper age to cook all ordinary food exquisitely; the youth of both sexes to be disciplined daily in the strictest practice of vocal music; and for morality, to be taught gentleness to all brute creatures—finished courtesy to each other—to speak truth with rigid care, and to obey orders with the precision of soldiers. Then, as they grow older, they are to learn the natural history of the place they live in—to know Latin, boys and girls both—and the history of five cities: Athens, Rome, Venice, Florence and London.

Of course this is not all. Those cities are named that they shall learn "what has been beautifully and bravely done"—something about heroic deeds and art.

The training of girls has an important place in Mr. Ruskin's writings. "To the real little housewives" whom he loves he dedicated, as a Christmas offering, his book, *The Ethics of the Dust*, mostly about crystals, but having one chapter on home virtues. He has lofty ideals for girls—will they live up to them? He says:

Girls should be like daisies; nice and white, with an edge of red if you look close; making the ground bright where they are; knowing simply and quietly that they do it, and are meant to do it, and that it would be very wrong if they did not do it.

About cooking:

It means the knowledge of Medea and of Circe, and of Calypso and of Helen, and of Rebekah, and of the Queen of Sheba. It means the knowledge of all herbs and fruits, and balms and spices, and of all that is healing and sweet in fields and groves, and savory in meats; it means carefulness, and inventiveness, and watchfulness, and willingness, and readiness of appliance; it means the economy of your great-grandmothers, and the science of modern chemists; it means much tasting and no wasting; it means English thoroughness and French art and Arabian hospitality; and it means, in fine, that you are to be perfectly and always 'ladies'—'loaf-givers,' and, as you are to see, imperatively, that everybody has something pretty to put on, so you are to see, yet more imperatively, that everybody has something good to eat.

To go back now to the two books named at the beginning of this paper. The *Letters to Young Girls* are in answer to a little petition from some girls who were interested in the St. George's Society and wished him to give them rules for their conduct and studies, which would help them in their daily lives. Can you not imagine, therefore, what his forty-five pages are full of, and what a sweet and noble womanhood they set before one?

*Sesame and Lilies* has "King's Treasures," the treasures whereof are books, and "Sesame," the



magic word which admits you to them, and "Queens' Gardens," meaning the wide territory over which women reign. As you read the latter you will see what is this man's ideal; and a girl of fine instincts will not be slow to kindle with hope and effort, and will thank him for his chivalrous words, and for the way he honors the grace, tenderness, and intellectual power, the moral courage and spirit of self-sacrifice and true dignity of character that belong to the best womanhood.

In that paper are likewise suggestions for your reading of Shakespeare, Scott, Chaucer, Spenser and others of the masters in literature. It is a subject he loves to linger over; he even appends a chapter on "Things to be studied," to his little work on *The Elements of Drawing*, which is another of his books for girls to own. See what he says:

There are some books which we all need, and assuredly, if you read Homer, Plato, Æschylus, Herodotus, Dante, Shakespeare, and Spenser, as much as you ought, you will not require wide enlargement of shelves to right and left of them for purpose of perpetual study. . . . A common book will often give you much amusement, but it is only a noble book that will give you dear friends. Remember also that it is of less importance to you in your earlier years that the books you read should be clever, than that they should be right.

He would have girls not only humane, tender and true, kind to strangers, refined, neat, and in a word, ladies, but trained to habits of accurate thought, and thorough; not half-know, or "mis-know." The three papers which teach this in brief, under that name *Sesame and Lilies* (the third is on architecture), are already classics, as some critic says, being "discourses on the art of beautifying life, on the mission of books and the needs of education."

And now, I cannot help quoting one of his descriptive passages from that intensely fascinating book about the Greek myths of cloud and storm, *The Queen of the Air*, which no one should fail to read.

We will take the bird first. It is little more than a drift of the air brought into form by plumes; the air is in all its quills, it breathes through its whole frame and flesh, and glows with air in its flying, like blown flame; it rests upon the air, subdues it, surpasses it, outraces it; — is the air conscious of itself, con-

quering itself, ruling itself. . . . As we may imagine the wild form of the cloud closed into the perfect form of the bird's wings, so the wild voice of the cloud into its ordered and commanded voice; unwearied, rippling through the clear heaven in its gladness, interpreting all intense passion through the soft spring nights, bursting into acclaim and rapture at daybreak, or lisping and twittering among the boughs and hedges through heat of day, like little winds that only make the cowslip bells shake and ruffle the petals of the wild rose. Also upon the plumes of the bird are put the colors of the air. . . . The vermilion of the cloud-bar, and the flame of the cloud-crest, and the snow of the cloud, and its shadow, and the melted blue of the deep wells of the sky.

Mr. Ruskin has had, and perhaps still has a beautiful house on Denmark Hill, near London, and he has a country home, Brantwood, Coniston, in the Lake Region. No small portion of his life has been spent at Oxford where he was for a time art professor — a position to which he has lately been called again; for, however peculiar and antagonistic have been some of his opinions, he has long been considered one of the best art critics in Great Britain.

By those who have only occasionally met him, he has been described as whimsical and "full of crochets" (mostly benevolent ones, however), but they who know him intimately see only that he is kind and lovable, extremely friendly to art students and all who truly want to learn; and he is "almost idolized by his neighbors," which speaks well for any man. He says he has all his life desired good and not evil; has wished to be kind to all; has wilfully injured none; has loved much, and not selfishly; and "you who read may trust my thought and word in such work as I have to do for you."

NOTE.—A list of his books for young people, to begin with: *Sesame and Lilies*, *Elements of Drawing*, *Letters to Young Girls*, *Ethics of the Dust*, *The King of the Golden River* (a story). After these would come *Queen of the Air* (a study of the Greek myths of cloud and storm), *The Eagle's Nest* (on the relation of science to art), *Proserpina* (studies of wayside flowers), *Love's Meinie* (on birds), *Seven Lamps of Architecture*, *The Stones of Venice*; others in due time. In *Bayne's Essays in Biography and Criticism* is a criticism on Ruskin; and in a recent volume Edmund J. Baillie gives *Aspects of his Thought and Teachings*, with a descriptive list of his works, forty-seven titles in all. There are also volumes of selections, such as *The True and Beautiful*, *Precious Thoughts*, *Art Culture*, etc.

## THROUGH A MICROSCOPE.

BY MARY TREAT.

### XI.

#### ON THE BEACH.

MANY of our young people will spend the month of August at the seaside, and if those who

wish to learn something of the curious microscopic animals will stroll along the beach when the tide has receded, until they come to rocky places and little pools filled with salt water and various marine plants, they will find a form of animal life quite different from that in fresh water ponds. These little pools



along the rocky coast are the homes of countless numbers of zoophytes—animals which have a stronger resemblance to plants and flowers than any we have found in fresh water.

Look for specimens for microscopic work on the surface of the rocks, on dead sea shells, and on the sea-weeds. On the sea-weeds you will often find a white filmy network which to the unassisted eye looks like simple white threads running and spreading in every direction, and at every angle of the network a tiny stem shoots up, branching out like a tree and making a miniature forest.

Now if you apply a low power of the microscope, you will find the little forest is made up of a strange animal called *Laomeda geniculata* (Fig. 1). Each branch of this compound animal terminates and expands into a lovely vase and is the home of a polype. The polype is not a separate individual any more than the end of a growing branch is separate from the tree on which it grows.

When the creature is hungry he sends out from the margin of the vase from fifteen to twenty tentacles, ranged around the rim like the petals of a flower. Figure 1 shows one of these expanded polypes as seen through the microscope.

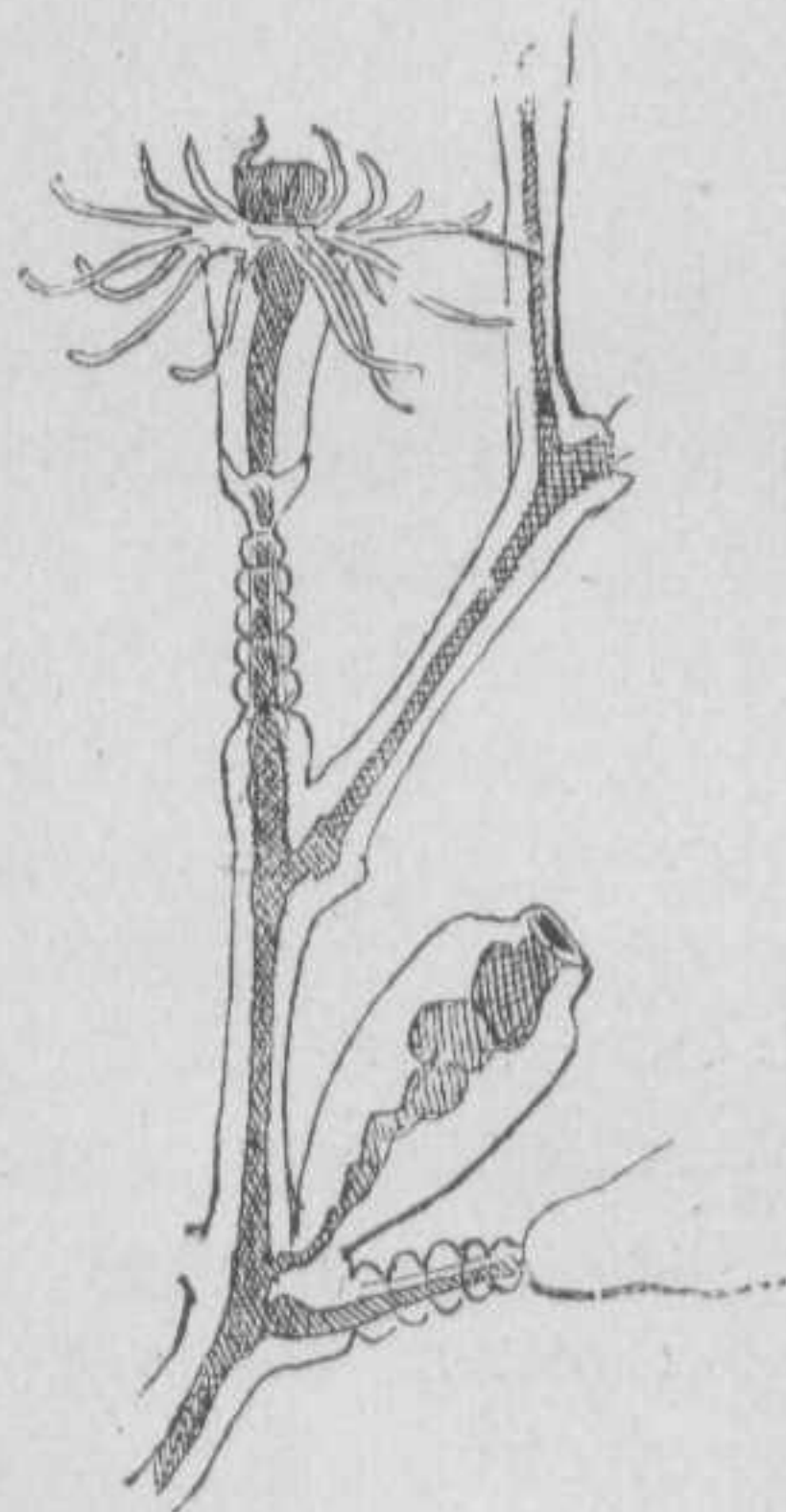


FIG. 1. LAOMEDA.

The tentacles or feelers are fishing rods to bring game to the fleshy mouth which is protruded from the centre of the vase. A great many such mouths surrounded with their tentacles are necessary to feed this singular compound creature.

All that I can tell you of these microscopic animals will be nothing compared to a study of them with your own eyes, so I will only give you hints of what you may expect, thereby hoping to create sufficient interest to induce you to stroll to out-of-the-way places, where you may find many of Nature's marvellous works. We want more field workers in every department of Natural History, and especially in microscopy where unexplored fields are awaiting you.

When the tide has receded, various objects of interest will meet your eye at every step. Look at that old dead sea shell covered with a rough, shaggy nap. Ah, as we approach, the shell is moving off! What can it mean? Why, it means that a hermit crab has set up housekeeping in the old shell, and he, no doubt, thinks us suspicious characters and wants none of our company. But we are after microscopic objects now, and this hermit, interesting as he is, is not to claim our attention to-day. The rough coat on the outside of the shell is of more interest.

With the aid of a pocket lens you will find it another zoophyte. You can see the polypes, as thick as they can well stand, rising erect and straight from the shaggy coat like a miniature field of wheat. With a

higher power you will see that each mouth is surrounded with tentacles like those of *Laomeda*, but yet it is quite a different looking creature. If we touch one of these polypes ever so lightly, the great army immediately close their tentacles, for the same life pervades the entire colony, and those on the extreme outer edge feel the contact as quickly as the one we touched.



FIG. 2. LARES.

One of the most comical and amusing creatures of all the zoophyte tribe is figured and described by Mr. Gosse under the name of *Lar Sabellarum*. He was the first observer of this curious creature; he found it inhabiting the outer edge of the tube of a worm—the Sabella. So when you are looking for microscopic objects do not overlook any tube that you may see standing above the surface of sand and mud, as it may be surrounded by this singular zoophyte. The tubes usually extend an inch or two above the surface, and about as far below. I have found the tubes surrounded with the creatures, but not in as good condition for investigation as those Mr. Gosse mentions. Mine were too thick and crowded to distinguish clearly. But as Mr. Gosse describes them, they have a most close resemblance to the human figure as they stand erect around the mouth of the tube of Sabella.

A loose network surrounds the top of the tube and the strange forms spring from the angles of the meshes. The creatures are furnished with heads, and immediately below the head are two arms (Fig. 2). The head moves to and fro on the neck, while the arms are tossed wildly about as if gesticulating in the most earnest manner. Or, as in the wild and disorderly dances of savages the body sways back and forth while the arms are thrown upward and downward in a frantic way.

Last summer I found a colony standing so thickly together that they did not show off to very good advantage. Apparently they were like a packed army of Liliputians, striking out with their arms and struggling with one another. But when I came to observe them more carefully, I found they were not interfering with one another at all, but each was intent on his own business of obtaining a livelihood.

The Sabella which inhabits the tube is of itself a most attractive object. Most elegant fringed filaments proceed from the head, and wave back and forth like a fan, and near the ends of these delicate slender filaments are little black balls, supposed to be eyes. If they are eyes, the Sabella has no lack

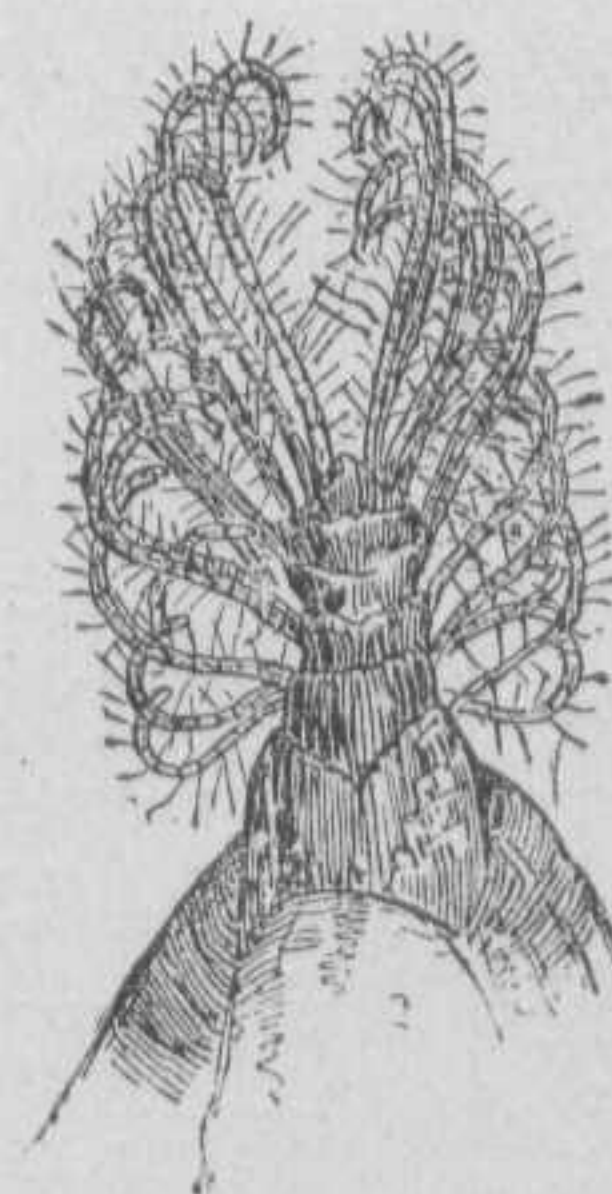


FIG. 3. HAND OF BARNACLE.



of vision, and this may account for his seeming watchfulness. He is always on the alert and drops down into his house at any approach. Only with the utmost caution will you have an opportunity to leisurely look at his rare beauty.

When for the first time I saw this elegant, beautiful creature rising out of the tube, and waving its fringed fan-like filaments, I did not wonder at Mr. Gosse's enthusiasm. Neither was I surprised that he should be reminded of the old Roman mythology and call the zoophytes which surround the tube, "Lares," for the rare beauty of Sabella would suggest the protection of guardian spirits. He says:

"These curious creatures have afforded much entertainment, not only to myself, but to those scientific friends to whom I have had opportunities of exhibiting them. When I see them surrounding the mansion of the Sabella, gazing, as it were, after him as he retreats into his castle, flinging their wild arms over its entrance, and keeping watch with untiring vigilance until he reappears, it seems to require no very vivid fancy to imagine them so many guardian

demons; and the Lares of the old Roman mythology occurring to memory, I described the form under the scientific appellation of *Lar Sabellarum*. You may, however, if it pleases you better, call them 'witches dancing round the charmed pot.'"

When the tide is out you will frequently notice barnacles adhering to the rocks, or to the timbers used in the construction of wharves. Pray stop and examine them critically and see what admirable fishers they are. Their fishing-nets are composed of several long, flexible, jointed fingers, thickly beset with sensitive hairs. When the fisher wants a meal he thrusts his long hand (*Fig. 3*) out the door of his stone house; the sensitive fingers quickly tell when they come in contact with anything good to eat, and they curl over and grasp it and convey it to the mouth.

These barnacles are wonderful creatures and well worthy your continuous study. They pass through several stages. When young they are a gay rollicking set, swimming freely in the water; but as maturity approaches they settle down in stone houses, never more to rove about, and set up fishing for a living.

## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

### XI.

#### TRIAL OF HOPLEY: CRUELTY TO CHILDREN.

THE question has always been perplexing how far police officers and judges ought to interfere with the management of children. The parents seem to be the proper persons to take care of children, and they usually have a natural instinct of affection which restrains from cruelty and neglect. Next to the parents are the teachers to whose care children are intrusted by their parents; and they are subject to the general directions which the parents give. Formerly it was thought best to leave the care of children almost wholly to their parents and teachers. But some have no parents; some are too poor to go to school; some parents and teachers have shown themselves to be careless or even unkind, hence laws have been passed in recent times to make better provision for their safety and education. That some such laws may be necessary is shown by several trials of old times.

There was once in England a schoolmaster named Hopley, who had in his school a boy who was dull, and seemed to the master to be obstinate in neglecting his lessons. The master whipped the pupil once or twice, but this produced no change; and he then

wrote to the father, saying: "If the boy were my son I should subdue his obstinacy by chastising him severely, and if necessary, should do it again and again." The father answered: "I do not wish to interfere with your plan." The teacher then chastised the boy for about two hours so severely that the lad died the next morning. Of course, for such cruelty as this, the teacher was tried. His lawyer argued that punishing disobedient pupils in school is lawful; but the judge said that only a moderate punishment is lawful, and a moderate one would never cause death. The fact that the father consented was urged in defence; but the judge said that a father cannot give or authorize an excessive chastisement. The lawyer argued that the teacher believed that the lad was obstinate, and that he himself was only doing his duty. But the judge said that his mistaken motive was no defense for using excessive and dangerous violence. So the teacher was found guilty.

A very similar instance occurred about seventy-five years ago in New York State. The unfortunate pupil was a little girl of about six years. She could not or would not pronounce properly some of the words given out in the spelling-class, and particularly she pronounced the word "gig" as if it were spelled "jig." The teacher thought that she refused obstinately, and he began punishing her to compel her to



say the word aright. The truth probably was that she did not know the correct sound, or perhaps she could not make it; therefore he continued the punishment so severely and long that the child died a few days afterward. He was found guilty of murder.

In Bengal there was once employed in the school of the English missionaries a schoolmaster named John MacRay who had two daughters. When his wife, their mother, died, his sister Helen became his housekeeper, and took charge of the girls. She was morbidly strict and severe in her ideas of how children should behave and of her duty in managing her little nieces. One would have supposed that as the girls grew older the rigor of the aunt's discipline might have relaxed, but instead of this her treatment of them became more and more severe; their food was reduced to a mere porridge, their lessons and tasks were made excessively onerous, and the punishments inflicted for any fault or failure were even cruel. At length the youngest girl, exhausted with hunger, probably, was detected in stealing, as her aunt considered it, some preserves. The aunt thought what the child said when reproved was impertinent, and commenced to punish her. She probably acted from a certain morbid sense of duty, at any rate there was no concealment; she even sent for the father to come in from his school. He remonstrated, but lacked courage to oppose his sister's imperious will, and she continued the punishment until the little girl died. Both aunt and father were brought to trial. The only defense which could be made for them seems to be that parents have a right to chastise refractory children and that if they act sincerely in doing so they are chargeable only with error of judgment, not with a crime. But they were found guilty, and sentenced to be transported for life.

In different parts of this country there have been a number of trials of schoolteachers for harsh treatment of pupils, and the judges have said that moderate punishment for serious misconduct is lawful, but if the twelve men who are called to try a teacher feel sure that the punishment he inflicted was unreasonably severe, he may be sent to prison. This may be done either when the pupil has been punished without having done anything very wrong or without being told what his fault was, or when the punishment has been barbarous in manner or too long continued.

Such trials as these have shown, I think, that some parents and teachers who suppose they have authority to punish children in order to make them do right are mistaken. A child may be punished (moderately) for having done wrong, and this probably will gradually teach him to do right. But undertaking to punish for the purpose of compelling a child to do what has been commanded—to recite a lesson, put playthings away, to confess a fault, or the like,—is a different and sometimes a dangerous thing, and is probably unlawful. At any rate, such trials have shown that there was need of stricter laws for protecting children from cruelty, not only in punish-

ments, but in others things. And many have been passed within a few years. Some such laws require parents and guardians to send their children to school for at least some weeks in every year, so that the little things shall not grow up without at least a partial education. Others forbid managers of mines or factories from employing children who are under a certain age, or for more than a certain length of time daily, or at tasks which are deemed too hard or dangerous for their tender frames. Likewise, in some places, recent laws forbid that children should be employed to sing or dance in public exhibitions, or should engage in dangerous performances such as walking a tight-rope or riding swift horses in a theatre or circus. Then there are laws by which little children who are cruelly treated by their parents or guardians, or have been deserted by those who ought to take care of them, may be taken in charge by police officers and carried to asylums to be fed, clothed and educated. And in some cities where friendless and unprotected children are numerous, benevolent societies have been organized to care for them and insist on the laws for their protection being obeyed.

In the January *WIDE AWAKE* I gave account of the case of little Louis Victor who was rescued by such a society from a sort of asylum where he was slowly starving. In a great variety of such cases where persons who have the charge of a child are neglecting or abusing it and the child is actually suffering, a society, or any benevolent person willing to make a complaint, can almost always, under modern laws, secure relief and protection.

Is it unlawful to employ children to dance and sing, act parts in plays or perform in circuses and exhibitions? There are many shows and performances in which there are parts particularly appropriate for children. Suppose, for instance, there were to be an exhibition of *Dombey and Son*, or of the *Old Curiosity Shop*; how could the parts of Paul and Florence or Little Nell be filled by grown persons? Many persons think that if the children employed in these plays and exhibitions are comfortable and happy, if they are willing to perform and satisfied with the treatment and wages they receive, there is no cruelty, and the judges and police officers ought not to interfere. "Children," they say, "have a right to work in ways which they like and their parents approve, to earn their living." The benevolent persons who have formed the societies say that little children are not able to judge what employments are safe for them; that exhibitions which keep them up late at night, require unusual and dangerous exertions, and involve them in the excitements of appearing in public, are unwholesome, and are not less so because the child may enjoy the excitement and be pleased with the idea of earning wages. Also they point out that children who are kept busily engaged in rehearsals and practice, and in evening performances, cannot



have time and strength for attending school and acquiring a proper education; and they have gathered testimony of many physicians who say that such employments are dangerous to the health of young children, and of some experienced and successful managers of public entertainments who say that the effect of allowing young children to take

part in such performances, even as much as they sometimes like to do, is harmful in other respects. In New York, within a year or two past, there have been several trials to determine whether young people should be allowed to perform in public or whether they should be kept at home or in school until older.

## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

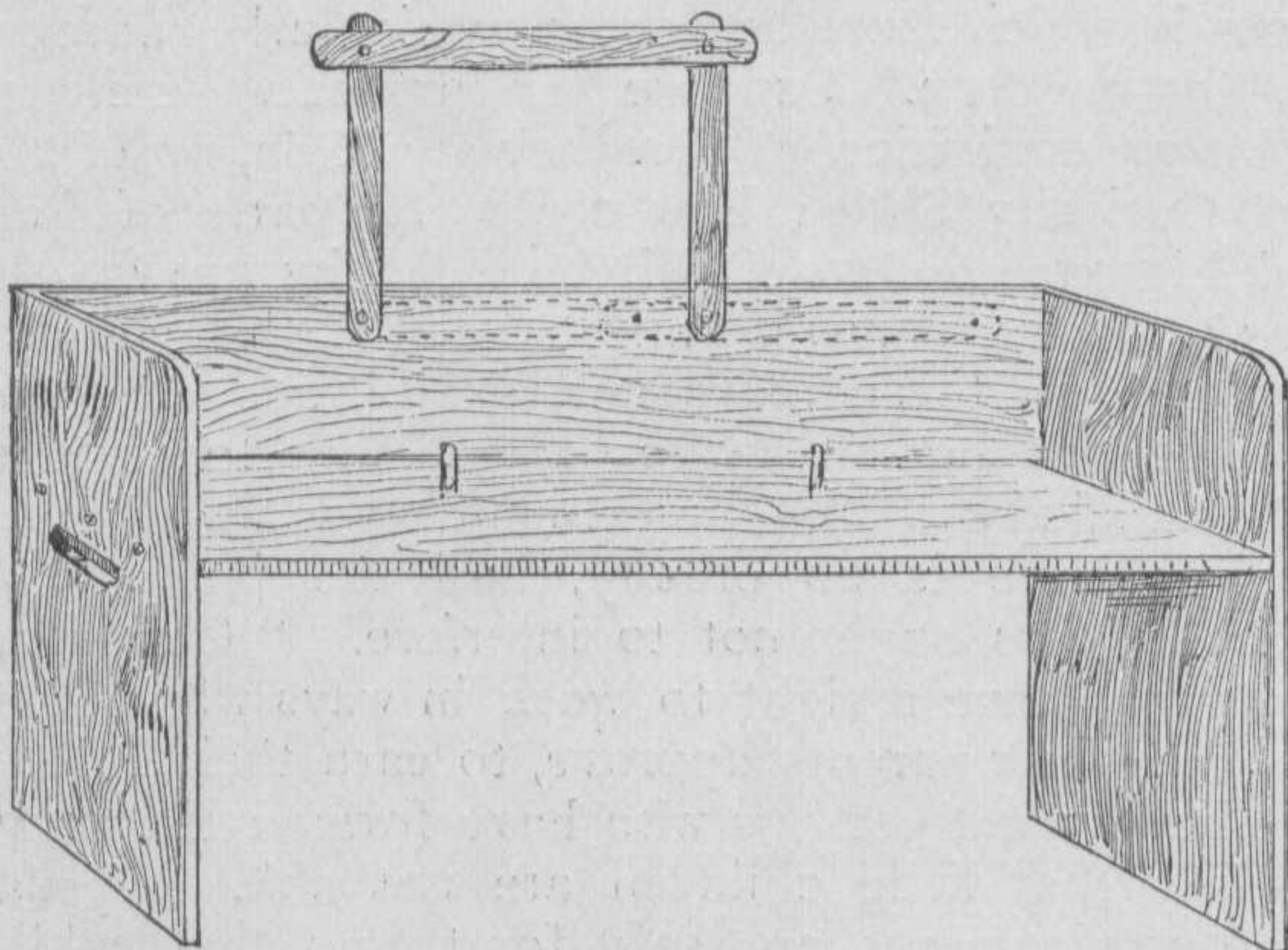
### XI.

#### A BED TABLE.

THE accompanying figure shows you a very useful but rather peculiar piece of furniture quite simple to make; if you are ever ill in bed yourself or any one in the family is obliged to lie in bed and have meals brought to them, I think you will say it is a handy thing to have instead of a waiter that joggles and tips on one's lap in the bed, instead of even a table at the side of the bed that compels one to twist round uncomfortably in order to reach.

It explains itself, almost; but a few directions and dimensions will help you.

As you can see, it is a tray with legs to set over the lap in bed, with a rim to keep things from sliding off,



BED TABLE.

and is light enough to be carried by the side handles; a tempting breakfast for the invalid can be arranged neatly upon it instead of a waiter.

It can be made of any kind of wood, but black walnut is as pretty as any and enough can be bought for it for about fifty cents.

You will need two boards, each two feet long; one should be one foot wide and one half inch thick, the other one and a half feet wide and one half inch thick.

Take the first one; plane nicely, being careful to have the ends and edges square. Set this aside for the top of tray.

Plane one edge of second piece (the one and one half feet wide); with splitting saw cut off strip twenty-four inches long by four inches wide: square ends and plane edges of piece left. Measure one foot from end, square and cut off. You will have two pieces alike for the ends or legs, and one strip two feet long, four inches wide, for back.

Round off one edge of top (the piece two feet long by one foot wide) with small plane, and sandpaper smooth. Take two side pieces; find points nine inches from bottom and respectively four and eight inches from side of leg; bore holes with largest bits, split out piece between, enlarge and smooth with gouge or knife to fit the hand. These are to slip the fingers through to hold the tray.

Draw a line parallel with, and ten inches from, bottom of legs and fasten one leg on either end of the two foot by one foot piece, using three one inch screws for each leg.

Fit the back piece neatly on to square edge of top and fasten with four screws; put a screw on upper corner of each of the sides, through into end of back to make it steadier.

If the corners of the sides are rounded as in picture, it will look a little better.

You can make this bed table even more useful by attaching a simple book rest which will be a great comfort to an invalid who is able to read yet finds it fatiguing to hold a book.

Cut two pieces one quarter inch thick, one wide and seven inches long, and one piece nine inches long; one half inch from bottom of the two seven inch pieces, bore holes large enough for seven-eighths inch screws to play in.

One half from ends of nine inch piece, make some



smaller holes, and also two holes one inch from top of back (on inside) and eight inches apart.

Screw ends of seven inch pieces into these holes and the nine inch piece into the other ends of the seven inch pieces; of course the screws must play

easily. When not in use the rack will fold over and lie inside the back as shown by dotted lines.

To keep the book from slipping forward insert two movable pegs about three and a half inches apart in front of middle of back.

## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

### XI.

#### BLUE MONDAYS.

A POOR housekeeper always dreads Monday," a wise woman once said in my young ears when I thought Mrs. Barbauld might as well have written

Never yet did housewife  
Greet with a smile the *weekly* washing day.

Sunday evening would close serene and full of lovely thoughts, while Monday opened on scenes of slop and steam, soiled clothes strewn over the floor, a sink full of unwashed dishes, an unkempt house, and a mistress with hair and temper awry. This is the kind of penance some women go through every week of their lives, and never improve in fifty years' experience.

Not every woman needs to do her own washing, even in plain families, but every one should know how to order things that washing days will not make the whole house uncomfortable, and be a martyrdom to the worker. It is best to know how to take a hand at the washing yourself, for laundresses are not found in every part of the country, and many an army officer's wife, many a home missionary's wife, and the daughters of well-to-do families in country towns, find themselves obliged either to wash their own clothes or go without clean ones. Lady Hester Stanhope when a girl in the proudest family in England used to remember her aunt, the Countess Dowager, going about the wash-rooms and bleaching grounds, peering into tubs and "coppers," — as the English call boilers — berating the maids and occasionally plying her rattan across their shoulders if the linen was not white enough to suit her ladyship's ideas. Miss Martineau and Mrs. Somerville used not only to wash linen and laces, but to dye and "do over" gowns and pelerines in right notable fashion, and George Sand, who was a woman of much force of character as well as genius, often recalled how in the days when she was making her literary reputation in Paris she did her own washing — and did it beautifully too. I never knew a woman of really fine spirit and

breeding who could not without hesitation accept whatever duty was needful, whether tending a sick person, doing field or housework, or looking into details of business.

The loveliest, most refined women have always in reserve a fibre of steel to meet the inevitable without affectation or complaint. I've seen a high-bred Englishwoman with accomplishments at her fingers' ends work at the wash tub as composedly and gleefully as if born a laundry-maid, while the young women of no particular family or bringing up are the ones who cannot go to market without a maid to carry the basket, cannot carry a parcel and always speak of washing and "domestic duties" as things of a lower order, quite out of their comprehension. I do not mean that one is to do rough work unnecessarily, but that you should learn a spirit which asks only, "Is this necessary, is it best?" and thereupon makes duty acceptable and becoming. Half the rough work in the world — I will speak the truth and say most of the work in it, is rough only in the manner of doing it. Not to be in heroics over common indispensable work, which belongs to our cheeriness and comfort, along with white curtains and ruffled skirts, snowy kerchiefs and collars, and soft white body linen, I would have you feel yourself so much of a lady, so thoroughly in love with what is fine and becoming, that you are safe in doing whatever is convenient for you, whether it is digging the borders and filling flower-pots, or putting the week's washing through the alchemy of white foam, to come out snowy and odorous of freshness.

The beginning of washing as it should be is taking care of the soiled clothes through the week. They must not be tossed in all sorts of corners to gather more soil to vex the washerwoman and wear them out, neither must the clothing full of perspiration from the body be packed in a bag or basket to saturate the heap with smells. You know that clothing absorbs the secretions from the body, and if at all warm and damp, these change into unwholesome poisonous matters. Ill-smelling clothes are not good for one to work over, or breathe steam from the suds in washing them. When you change clothes, put the



soiled ones in the sun to air thoroughly an hour before putting away. You may have a clothes bag of gay calico lined and bound with red alpaca braid, a double bag with stout partition in the middle and a large opening each side, for you want to keep fine things slightly soiled apart from those that see hard usage. Such a bag should hang in the up-stairs entry to receive soiled things from the bed-rooms, and be emptied daily into the big basket in the airy back-kitchen, shed or porch, never anywhere in a close closet or cellar-way to taint the air around. Have a separate bag for tablecloths and napkins. Dish-towels and cloths are to be washed and rinsed daily, dried and kept separately from everything else.

Be good to yourself by making and keeping one hard and fast rule: always to do the washing Mondays. There is reason for this; because you never will feel so strong and fresh for the hardest work of the week as after Sunday's rest. Remember rules are favors for the makers and rods for the breakers, when you grumble at having to do things when you don't feel like them. The penalty usually is having them to do when you feel still less inclined and less able, in a vexatious hurry.

No matter if the girls are going in town shopping by the Monday train and want you to join them, or if the committee of the Bluebell Coterie want you to go around to solicit subscriptions for the momentous matter of their society badges, or if you feel just like reading the new poems all the forenoon and writing letters in the afternoon—to tell what you think about them. Let these weighty interests go by—for Tuesday morning you will feel just as strongly inclined to go after flowers with the May party, or to work at your sofa cushion, or to call on the neighbor who was hurt last week, and by Friday, the housework will roll up in a crushing shape, when you have neither strength nor spirits to meet it.

Promise yourself to begin that you will never allow the washing day to be dreadful to you or the house, and that its disagreeables shall be met and conquered, as they may be by the aid of common sense and intelligence. Now you want to put your wages into a new sort of a servant, one that will do the work, and neither waste, steal or tattle, and whose keep costs nothing. You can afford to have all the modern helps for washing, a *good* washer, of the rocking patent, or still better, one of the steam boilers and a rocking washer beside. If you can have a small laundry next the kitchen, by all means persuade your father to fit up one, with a boiler set in the brickwork to save fire and avoid heating the house in summer. "Set tubs," as servants call them, are very convenient for lazy people, but are not kept clean as easily as movable round tubs, which are better every way. And where a regular laundry is impossible, a small, extra stove for the boiler, round tubs with wooden spigots to let the water out and hose to lead it into a large barrel or cesspool furnish every help at small expense. Aunt Hester will tell you that a

stove can be picked up at auction for three to five dollars which will answer all purposes. The steam washer costs three dollars and fifty cents, and the rocker from five to ten dollars as you may get it new or second-hand. If the latter, it will need to be cleansed inside and out with a broom and hot lye, to clear away the grease and settlings careless people leave in machines, which smirch clothes where you least expect it. The laundry must never be a rubbish hole, but be kept clean and free of dust, so that you will not have any more soil to wash out than belongs to the clothes. It is well to have two wringers, one of large size for sheets and counterpanes, so as not to strain the smaller for common articles. A large closet should be made to keep all the washing utensils clean and out of sight. You want plenty of clothes lines; one to hang out all the time for drying and airing things every day, and two for the washing, to be taken in when the clothes are dry, and kept in a clean bag. Common hemp line is cheap enough so that you can keep a fifteen-cent one out rain or shine, but you must keep lines and clothes-pins clean, or you will be vexed with soiled spots on the fresh linen which won't wash out easily. Don't use galvanized wire lines; they wear the clothes, and in winter freeze to them so that they are easily torn. Clean props and galvanized hooks for the line are necessary, and above all, a well-kept grass-plot for the drying-ground where no dust, no hens or weeds, can mar your clean washings, with a shady corner for calicoes, that the sun may not fade them.

What else! No soda nor washing powder, javelle water nor bleaching fluid which whiten clothes beautifully but ruin them in a short time. Some powders and fluids are safe, but none are better or cheaper than borax, which we know is good for hands as well as clothes. A pound of borax in a wide-mouthed bottle tightly corked is enough to last three months, and costs ten cents. An ounce of oxalic acid in a bottle with glass stopper will last a long time for taking out iron rust, and you want a pound of chloride of lime for bleaching desperate spots, or for disinfecting purposes. Bluing in little balls is better than the liquid in bottles. Beside these, keep one or two articles in your washing-closet not usually found there, but very useful—a peck of clean wheat bran for washing nice prints and lawns, and a truss of hay to restore color to brown linens. A small jar of rock salt is convenient to dissolve in the rinsing water to *set* the color of new prints. Keep these things ready, for it is troublesome hunting them up just as you need them.

Put the clothes in soak in tepid water, making a good lather to begin, and rubbing plenty of soap on the bindings, cuffs, and soiled places. Hot water sets the soil, tepid or cold loosens it, and soap combines with the animal oils and perspiration, which it neutralizes and takes out. It does not make much difference whether clothes are soaked all night or



half an hour, provided plenty of water and soap are used. When ready to wash, the first thing is to wring the clothes from the soaking water into a tub of clean warm suds, where they are rubbed. This may be done with the washing machine which turns out house linen nicely without other rubbing. Body clothing will need careful rubbing by hand on a washboard on all places where the wear comes. This is best done on a Magic washboard, which has slats an inch square that turn as one rubs, giving the clothes four times the rubbing on their blunt corners, they get from a common board. If you can't afford a machine, by all means have a Magic washboard, which is one of the few inventions that are really helps; it cleanses clothes very easily, does *not* wear them out, only costs fifty cents, and is better than most washing machines. I had one once, but don't know where the kind is made or sold. Let me tell you one thing about rubbing clothes; to fold as many thicknesses as you can handle between the soiled place and the board, if you want to wash easily and well. If you take up a fold or two and rub hard on the spot, it does very little good, for the fingers take the rubbing, not the cloth. To cleanse neck bindings, cuffs, or soiled stockings, use a dull steel knife or a wooden one to scrape them, laying them on a smooth board in the tub with many folds under the soiled parts, and dipping them in the water often. This is an easy way to get out the grime from cotton stockings that have been drabbled.

But these hints are for you only if you can't have that best gift to housekeepers, a steam-washer. I can never get over wondering at the simplicity and effectiveness of this little contrivance of galvanized iron tubes which sets the jet of boiling suds playing through and through the boiler of clothes till every spot and stain is discharged without the aid of hands. With the steam-washer you do not soak the clothes, but soap every soiled part *dry* and plunge them into the boiling water to steam half an hour. By all rules this ought to set the stains, but this is the exception which proves the rule beyond our common knowledge. Chemistry tells us, and experience shows, that heated steam, and soap boiling through clothes half an hour is too much for mortal soil. Things come out clean, but rather sad looking; they need a "sudsing" in clear water to wash away the grimy boiling fluid; then the rinsing in plenty of fair water, shaking and bluing, and you hang out clothes of old-fashioned whiteness which soar between you and the blue sky on the line, till the verses come into mind about the linen fair and white which is the righteousness of saints. If washing is worth doing at all, it is worth doing well; not with ruinous alkalis, but with safe ministers which bring out our clothes in the purity which is symbol and privilege.

There is nothing vulgar about washing — that is, there should not be, need not be. Take time to sweep your kitchen first, and have the dishes neatly piled in the sink to soak till convenient to wash

them, set chairs in place, brush the stove clean, and pray don't have stove covers straying about the floor — for nothing makes the kitchen more forlorn — but pile them in the oven out of the way. Have your wash-bench scoured white, the tubs and baskets in good trim; don't allow soiled frocks and flannels to illustrate the floor while they wait their turn, and keep the doors closed between the kitchen and other parts of the house. With this care, and a stove ventilator, you may wash every day of the week and no one in the house be the wiser.

I won't tell you any farther about washing; you may find the rest in Mrs. Cornelius' Housekeeper's Friend, and learn by asking every washerwoman you meet. For clever as you may be, to the day of your death it will surprise you that you can't find an old horny-handed laundress or char-woman who won't tell you something helpful you did not know before.

Clothing from the sick or towels soiled by ever so slight illness should be put immediately into warm water when taken from the person, all unpleasant substance removed after soaking an hour, with a very dull knife kept for such uses, and then put in lukewarm soapsuds till it can be properly washed. Never leave such things to dry and make the air offensive. If the disease is contagious, put the cloth into water which has a teaspoonful of carbolic acid to the pailful, and add a heaping dessert spoonful of chloride of lime to the boilerful of water when the things are boiled. Garments and bedding from persons sick of diphtheria, measles, scarlet fever or any contagion should never lie about a house, or be washed with the family washing, as it is likely to give the whole house the same disease.

And lastly, Anna Maria, don't stint your people in clean clothes and towels "to save washing." I vowed from the time I was a girl the phrase should never be heard in my house, but everybody should have all the clean towels and pillow-cases, napkins and handkerchiefs they wanted, if I had to sit up nights and wash them myself. With a steam washer, a rocker and wringer, you will find it no effort to keep the family in the very luxury of white linen, snowy toilet-covers, ruffled pillow-cases, and unsullied skirts, clean napkins every day and dainty tablecloths, so that your brothers will never have occasion to wish that things might be as nice at home as they are at the restaurant or the club. I've seen too many slender women get their big washings out of the way by ten o'clock Monday morning, with the aid of a good machine, and sit down smiling and untired, to have any dread of the process on which the honor and health of the household depend. Pray is the labor ignoble which furnishes the glistening sheets and spreads for the guest chamber, the snowy curtains for the bedroom windows, the crisp tucks and ruffles, the trim, spotless stockings and fresh collars and linen for everybody? Then see that you make it respected by your cleverness and tact in doing it.



## HEALTH AND STRENGTH PAPERS.

BY PROF. D. A. SARGENT.

## XI.

## SUMMER GYMNASTICS.



FIG. 1.

WITH the approach of warm weather one feels more disposed to sit quietly in the shade, than to expend his energies in vigorous exercise. If ten months of the year are spent in great mental and physical activity this practice is a wise one, but if you have been closely confined at work, or in school with no opportunities for exercise and outdoor enjoyments, it would be unfair to yourself to spend the summer in idle lounging. Do not say that you feel too languid—another term for too lazy—or that it is too hot, or too sunny, for these are poor excuses. Languor and lassitude often indicate conditions which are only relieved by active exercise, and as for your feeling too warm to make exertion, this is often the very best way to get cool.

Exercise hard enough in the forenoon to get into a profuse perspiration; then if you are strong and not too tired, take a cool sponge bath and a rub down, and you will be comfortable for the rest of the day. A few facts, however, should be observed with regard to summer exercise.

Have a change of air and scene if possible. If you have been hived up in the city all winter, a few weeks in the country or by the seashore will prove refreshing.

Take two light flannel shirts and a pair of flannel trousers. Provide yourself with a large sponge, rough towels, and a change of shoes, with light woolen stockings; then you will be ready for anything.

If you perspire freely and feel strong and vigorous, exercise in the sun will do you no harm. If you are weak and sickly, however, it will be better to avoid direct exposure at midday, and to confine your efforts in very warm weather to the shade.

As a general rule eat little meat in summer, but let your diet consist largely of fish, fowl, fruits and vegetables.

For summer gymnastics nothing is better than some kind of swinging exercise. If you can have access to a large hay barn, where the doors are open at both ends so that the air can draw through, you will be fortunate.

By the aid of a little ingenuity, you can rig up a swing, a pair of rings or a trapeze bar, that will

afford you no end of fun, and plenty of exercise. By a very little exertion the swinging motion of the apparatus can be kept up, and the sensation experienced by the increased current of air as you swing back and forth will be agreeable and refreshing.

If you could prevail upon the owner of the premises to let you swing and jump into the hay or straw, your pleasure would be doubly increased. But this privilege is hardly to be expected, as it injures the hay to have it much trodden. A substitute for this swinging jump, however, could easily be arranged in the orchard, or under an ordinary tree with wide-spreading branches. Get a rope about twelve feet long, fasten a handle to it that is fourteen inches long, and tie the other end to one of the branches. In order that the rope may not slip, take two or more turns around the branch before tying the knot. Let the handle hang so that it will be about six feet from the ground. (*See Fig. 1.*) Grasp the handle firmly with both hands so that the thumbs will be about one inch from the rope in the centre, then get yourself swinging by aid of the feet on the ground.

After you have swung back and forward four or five times, pull yourself up suddenly with the arms, throw the body forward, letting go of the handle and jumping as far as possible. (*See Fig. 2.*) Mark the spot where your heels strike, and let your comrade try it. If the ground is hard, it would be well to have it loosened with a spade, otherwise you might receive a jar that would be injurious.

This exercise may be varied somewhat by turning the body round at every swing forward. Care should be taken not to swing too high at first, for fear of landing on the back instead of the feet. In order to excel at this exercise one must be very strong in the arms and chest.

Another good exercise of the competitive sort is throwing the heavy weight.

Pick up a round stone five inches in diameter. Grasp this stone with both hands and stand with heels to a mark, and feet about twenty inches apart. Let the stone swing down between the legs once or twice, then throw it forcibly back and over the head as far as possible. (*See Fig. 3.*) Your

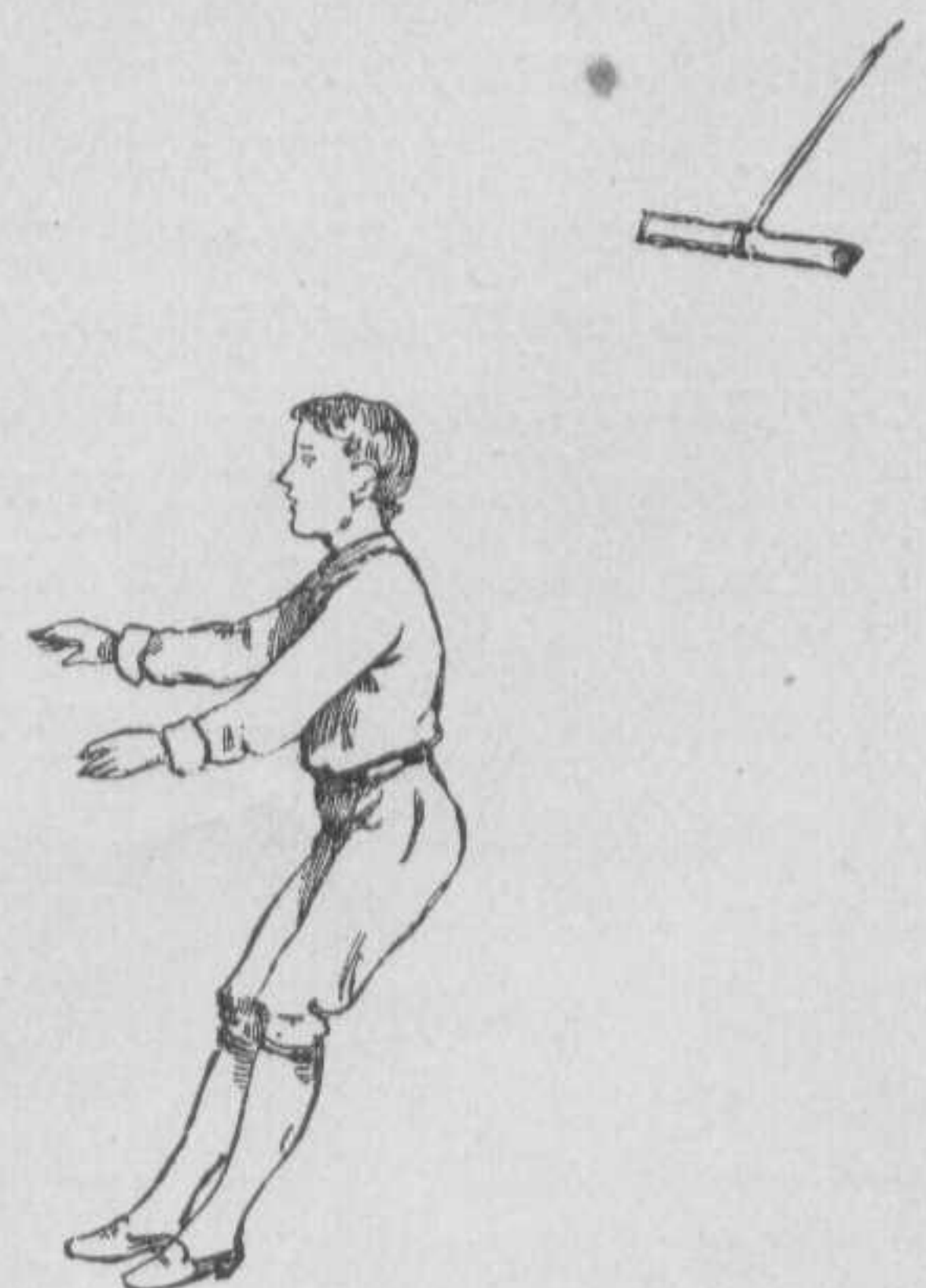


FIG. 2.



comrade will mark where the stone first struck, then he can try to throw it. This is a splendid exercise for the back, legs and arms, and can readily be practised anywhere. The pleasure in this exercise consists in having the distance thrown actually measured and recorded, so that you can note your progress, and see how you compare with others.

In a barn or shed where there are two upright posts about five feet apart you can easily fix up a horizontal bar. Do not content yourself, however, with an old rake or hoe handle, as these are hardly large enough to sustain your weight without danger of breaking.

If you are living near a wood turner you can get him to make you a bar out of good hickory or ash. If not, you can send to any regular dealer in a large city, and get a nice one for two or three dollars. Should you conclude to have a bar six feet long, it ought to be at least one and a half inches in diameter. If seven feet long, make it one and three fourths

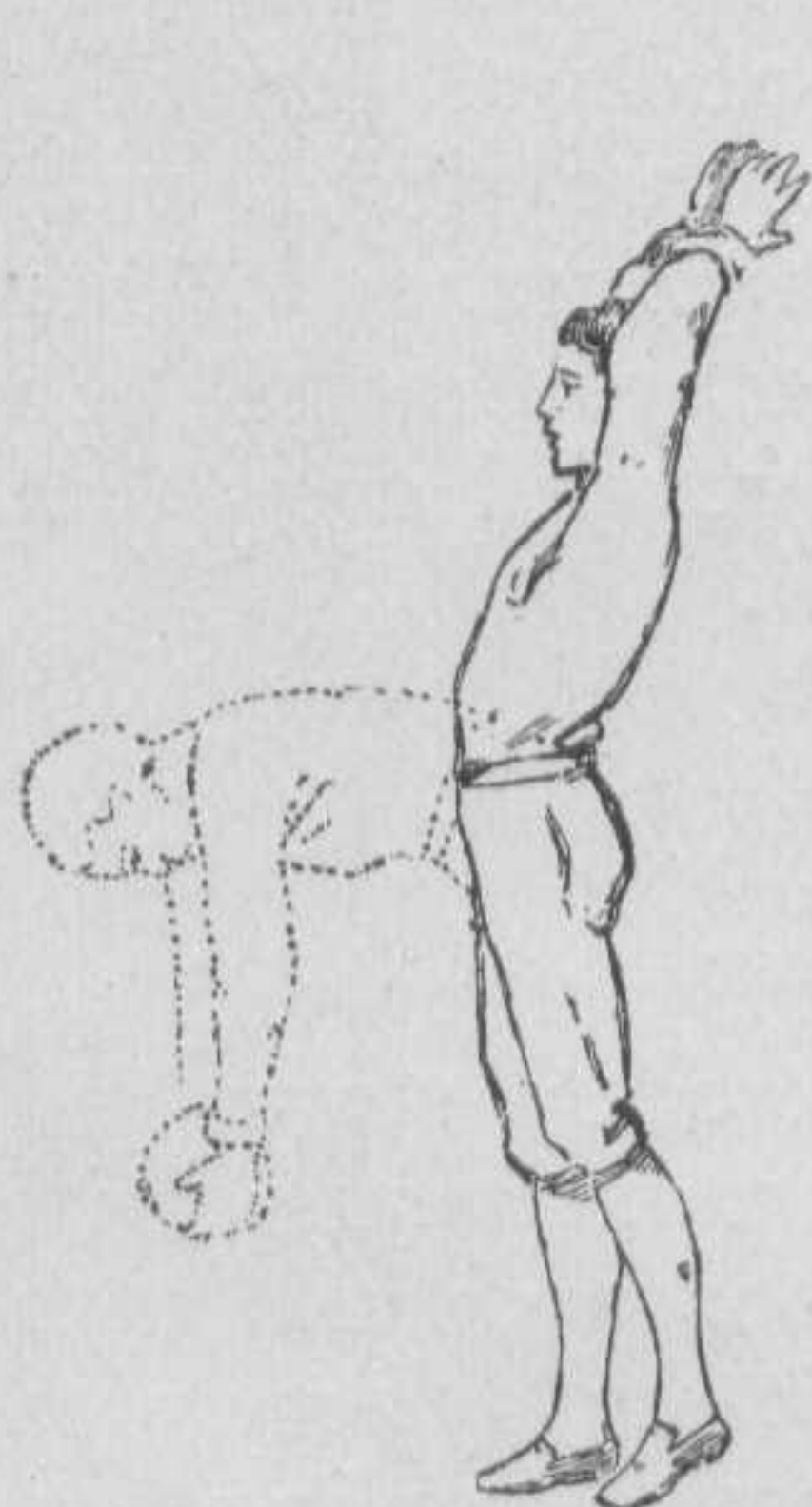


FIG. 3.

inches in diameter. Having obtained your bar, get two pieces of board about seven feet long, four inches wide, and one and one fourth inches thick. Now get a dozen blocks of wood the same size as the ends of the bar, and fasten these to the upright posts. (See Fig. 4.) Then put on the strips of board, and secure these to the blocks. (See Fig. 5.) Bore holes in the ends of your bar about one half inch in diameter (See Fig. 6), then place your bar in the spaces between the boards and posts, and bore corresponding holes through the boards into the posts. (See Fig. 7.) See that the holes are bored about two inches into the posts, then secure two pins just small enough to be

entered easily, and your horizontal bar is ready for use.

I will not attempt to describe any particular exercises for the bar in this number. Let it suffice to say

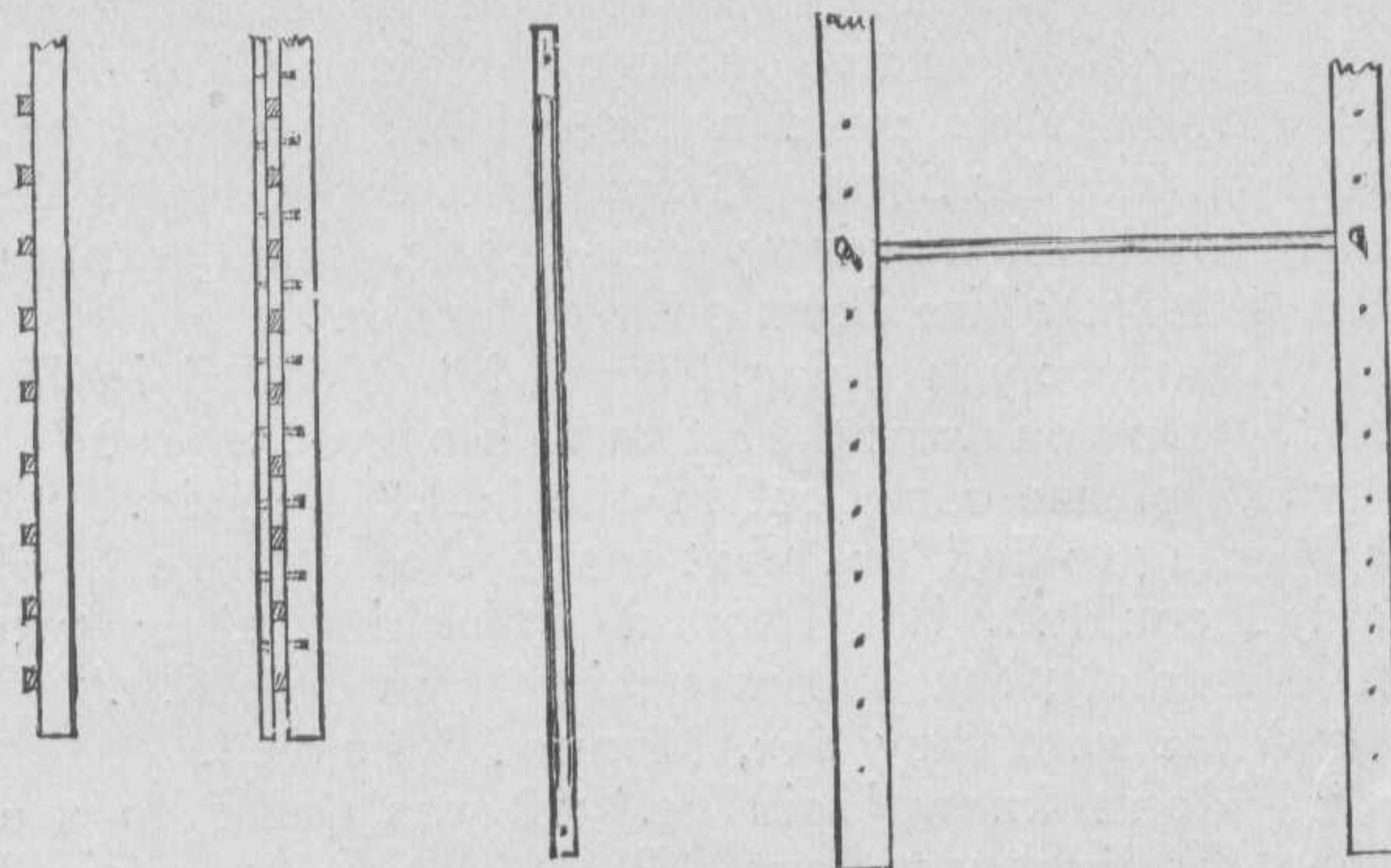


FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

FIG. 4. SIDE VIEW, PART WITH BLOCKS. FIG. 5. SIDE VIEW, OUTSIDE STRIP IN POSITION; DOTTED LINES INDICATE HOLES FOR PINS. FIG. 6. BAR. FIG. 7. FRONT VIEW, BAR HELD BY PINS.

that the simple revolves and circling movements by hands and legs are the easiest and most attractive for summer practice.

If you happen to be living near the mountains you can vary the gymnastics which give strength mainly to your arms, chest and shoulders, and try mountain climbing. Without an exception, this is the very best exercise for your legs. Put on a pair of boots, or heavy shoes with long woollen stockings, then secure a walking stick about seven feet long, and you will be ready for the climb. The heavy shoes or boots will protect your feet and ankles from injury from stones and stubs, and the pole will enable you to jump from rock to rock, and assist your ascent by giving you an opportunity to use your arms. In making the descent, the pole will be of service in helping you to secure a good foothold, and ease you down by aid of your chest and back muscles.

## DAYS AND NIGHTS IN THE TROPICS.

BY FELIX L. OSWALD.

### CHAPTER V. (Continued.)

#### A THUNDER STORM.

THEY knew that they could not be shaken off, and in the last glimmer of the twilight we saw them move to and fro like children in a swing. But the whining howl we had heard during the pauses of

the storm was evidently a cry of distress and seemed to come from under the porch where perhaps a wolf or a wild dog had taken refuge from the fury of the weather.

The window of our little room was a mere loop-hole which we managed to stop with a couple of bags, after which we lighted our camp-lantern; but such was the force of the storm that through the boards of two



closed doors and the cracks of the massive masonry, the draught every now and then made the light flicker. When we had unstrapped our blanket-rolls, Benny snatched up the lantern and slipped out of the room, and after four or five minutes we heard him come back, though we could not see him; the wind had extinguished his light. Groping his way through the dark, he stumbled over my pack-saddle, when I grabbed him and drew him down on my blanket.

"What are you doing, Monito?" I called in his ear. "Do you want the storm to blow you away?"

"Oh, please come out in the hall," he said. "I was going to find out what made that strange howl and I couldn't, but I found something else; two little animals, the queerest things you ever saw."

"What were they like, Monito?" I asked.

"I don't know," said he. "I was going to see when the light went out. Please let us try again."

The cook relighted the lantern, and he and Benny accompanied me to the front door. Just before we left the cell we had heard the howling quite plainly, but when we entered the hall all was quiet except the monotonous rush of the storm. "It must be a wild dog," I said; "maybe he has heard our steps on the floor."

"But look here, what do you call this?" said Benny, pointing to the lintel of the doorpost. Looking in the direction indicated, I saw two little animals which I recognized as *texonitos*, or prickly opossums; strange, ring-tailed little things that had taken refuge on the inside of the door, while on the outside the storm howled like a wild beast. They blinked at us, but did not budge; and not wishing to abuse their confidence, we left them to the enjoyment of their snug quarters.

By good luck, we had some ready-cooked provisions in our mess-bag, but during the hurdle race through the woods, the plug of our water keg had got loose, and the cook had to try to catch a pailful of rain water.

"Step out here, gentlemen, here he is now," said he when he came back with a pailful.

"Who is," I asked, "the wild dog?"

"No, the ghost; one of the monks or monkeys we were talking about."

"Yes; come this way," said the guide who had accompanied him to the porch; "I'm blind if there are not more spooks outdoors than indoors to-night. Come here, it's worth seeing!"

We stepped out in the hall and saw that he was right. Through a narrow window near the door a whitish light flickered against the wall, and looking through the opening, we saw that about fifty steps from the building a large bush was completely covered with dancing white flames. Their color differed from fire as moonlight differs from sunshine, and like will-o'-the-wisps they flickered with an unsteady light and now and then leaped over into the branches of the surrounding trees.

"What in the name of wonder can that be?" asked the guide.

"I have seen it once or twice before," said the captain. "*Stormfire*, we call it in Peru, and there's no harm in it; the flames are as cold as the night air."

It was that strange electric phenomenon called "St. Elmo's Fire," or "Castor and Pollux." It is seen chiefly in rainy nights, and if its flames appear on the masthead of a storm-tossed vessel, the sailors consider it as a sign that the tempest is over. In the present case, though, that rule would have deceived them, for the gale raged till after midnight, when the rain finally ceased and the wind moaned itself to sleep.

The next morning the building looked as if a troop of mischievous boys had strewn the floor with green leaves, and in one room where these leaves were mixed with all sorts of rubbish, we made a discovery which explained the howls that had puzzled us all night: a litter of blind young whelps that looked very much like poodle-puppies. By closing the front door we had separated them from their mother who had passed the night in the open air and was probably still lurking in the neighborhood; but we tried in vain to get a look at her, and by the appearance of her puppies it was impossible to tell if they belonged to a wolf or one of the various kinds of wild dogs that haunt the forests of Southern Brazil.

Thanks to the massive walls of the old convent, we had, after all, passed a comfortable night, and soon after sunrise we continued our road to Las Vegas, where we hoped to buy a fresh supply of provisions. The clouds had cleared away, the recent storm had left no traces on the sky; but what monuments of its power had it left on earth! By thousands and tens of thousands the old giants of the forest lay prostrate on the ground; trees of all sizes, from the sapling that had been torn out of its feeble roots, to the gigantic euphorbia whose top-heavy foliage had snapped the stem in the middle. In some places the torn-off branches were piled up like drift-wood, and in picking their way through one of these piles our mules suddenly shyed and retreated with that peculiar snort which warns the experienced hunter to reach for his gun.

"Get behind this tree," whispered the captain when we had stopped our mules. "I think there is a panther in that brush-pile; I saw him crawl over a log, and if I am not mistaken, he is crippled. Yes, listen! you can hear him now. If he comes this way we will stop his growling. Let two of us go and watch him from the other side!"

"One will do," said the guide; "I'll fetch him if he comes that way."

When our counter-guard had posted himself, the captain directed the boys to pick up a handful of stones and bombard the brush pile. At the third throw our customer appeared; a rakish-looking panther who advanced in a cautious and somewhat uncertain way, as if he had not yet ascertained the whereabouts of the ambushed foe. That information reached him in the form of two rifle balls, that must,



however, have failed to strike him in a vital part, for he turned with an angry growl, and, breaking through the brush pile, made straight for the tree where our ally had taken post. We saw his gun rise, but no further sign of his intention to use it. The panther stopped, advanced again and stopped once more, but still the gun-barrel remained immovable.

"Is he blind?" whispered the captain; "why don't he shoot? A queer hunter that."

The queer hunter, however, knew exactly what he was about. When the panther had approached within ten steps of the tree, he suddenly stopped short and turned his head as if he was going to bolt sideways, when a shot like the discharge of a little cannon boomed through the woods, and the panther dropped where he stood and without as much as a quiver. When we had helped the guide to skin his game I took hold of his gun and examined the barrel. It was an old Spanish musket with a smooth bore of an enormous calibre, and instead of a bullet he had loaded it with two handfuls of buckshot, and I could believe him when he answered me that it was "an old-fashioned gun, but very effective at short range."

## CHAPTER VI.

### THE OLD HUNTER.

About seven miles from the Mission house we had to cross the Tocantins River on a rope ferry, and while we waited for the boat, a little old man with a sack on his shoulder came down the trail and took a seat at our side. He carried a blowgun and a pouch full of small arrows, and judging from the color of his skin, we took him for a wild Bush Indian, and were rather surprised when he answered our greeting in the language of the educated whites, that is in pure Portuguese. His remarks, however, proved that our first impression had been about correct.

"Are you, too, going to Las Vegas?" I asked him.

"Yes," said he; "let's go together, so you won't miss the way."

"Why!" said the captain, "is not Las Vegas on this same road?"

"It *was*, señor," replied the Indian, "but there is nothing left but a few dust heaps; the rest of the town was blown away last night."

"What?—well, then we might save ourselves the trouble of going there: we intended to buy a lot of provisions."

"No danger, caballeros," said the old hunter; "the Indians will sell you all you want. I am myself taking a bag full of bananas there for an old gentleman I used to work for and who broke his leg last night."

"The unfortunate man!"

"No, he is very lucky that he did not break his neck. He jumped from his porch near sixty feet, down into the bottom of the river valley."

"Probably he saved himself from the falling timbers."

"Yes," said the Indian, "but he had no business to build a house like that; an Indian cottage can be put up in a day and is out and out safer."

"But not so comfortable," replied the captain; "a family should have a covered fireplace."

"I don't know why they should," said the Indian; "with a good blanket a person can do without a fire, and we dry our beef in the sun."

"But don't you want to keep your provisions dry? You need a storehouse for your vegetables."

"No, sir; the forest is our storehouse; all we need we find in the woods."

"But the woods is a poor place for carrying on a trade," remarked the guide; "a tailor or shoemaker needs a dry shop. No leaf-cottage can compare with a solid house."

"Yes, it can," insisted the Indian; "our tailoring doesn't trouble us much and we need no shoes. My sole is as tough as a bear's, and gets better every day, while shoe leather gets worse the longer you wear it."

"But do you not want a place to keep your powder dry?"

"A blowgun," said the hunter, "goes off without powder and doesn't make half as much noise."

We saw that he was getting the better of the argument, so we bought some of his bananas and paid him with a handful of sugar—money being one of the many things he had no use for.

The ferry was crowded with refugees from Las Vegas, and even before the boat reached the shore we could hear the loud weeping of the poor women and children, many of whom had lost all they had in the world. The site of the village was a high bluff, overlooking the valley of the Tocantins River, and some of the buildings had been utterly demolished, the planks blown over the bluff, the sun-dried bricks a heap of yellow dust, the shingles scattered all over the country; an earthquake could not have done half as much damage. Several of the inhabitants had disappeared together with their houses; the three daughters of the Alcalde or village sheriff were missing and had not been found yet when we reached the ruins. Before the storm broke out they had been at play in the woods, and no one could tell if they had been killed by a falling tree or under the *débris* of one of the ruined houses.

But while the whites mourned with a grief that refused to be comforted, the Indians, like the birds and other children of Nature, followed their usual occupations as if nothing had happened. Some were whittling out arrows, others weaving rush-mats to repair their damaged cottages, while their women peddled fruits and all sorts of sweetmeats. One old crone offered us a fine deer-hound whom she had rescued from the ruins of a log-house. The poor dog had been struck by a falling beam and looked badly bruised, but as far as I could see none of his bones were broken.

(TO BE CONTINUED.)



## WHAT TO DO ABOUT IT.

ALICE T. would like to know why the eagle was taken as the American Emblem. The eagle has been the emblem of empire from the time of the Romans who bore it on the standard of their legions, to the present time, when the two-headed eagles of Russia and Austria, and the Prussian eagle are national symbols as well as our own. The United States emblem is the bald eagle, known over most of North America as a very strong, fierce bird, which holds its own, and lays its eggs in the same nest year after year. As a sign of power and protection, nothing could be better chosen than this national bird which became the American seal in 1785.

JESSIE B. "I want to learn all I can about plants and gardening. What books on the subject do you recommend?" You may begin with *Wood's First Lessons in Botany*, a small book, but the best and most direct introduction to the knowledge of plants for beginners of any age, following with his *Class Book*, then with Professor Gray's works if you choose, which will be as thorough a course in Botany as people usually care to take. For gardening you want Peter Henderson's books, and having those you need nothing beside. There are no others about gardening so plain, full and delightful. Of the three which tell all that the gardener on large or small scale needs to know, *Gardening for Profit*, *Gardening for Pleasure*, and *Practical Floriculture*, you will probably want *Gardening for Pleasure* at first, as it tells about flowers, fruit and vegetables, house plants and outdoor gardens. The *Floriculture* is for florists who wish to grow flowers to sell. The *Gardening for Profit*, for those who keep market gardens, but all as plain for children to understand as if written for them. The *Handbook of Plants*, by the same author, you will want for a book of reference, as it tells you all that is interesting about plants known and grown in America, their botany, habits, uses in medicine or art, their origin, and how to cultivate them. I have gone through a hundred or more books about plants, and find these four all I want for use. You can find much that is delightful about the history, habits and sentiments of flowers in English books. This is a part of the subject unfilled as yet in American writing, except by such graceful works as Miss Harris's *Field, Wood and Meadow Rambles*, and her *Wild Flowers and where They Grow*. But in English works you find several volumes about garden flowers. *British Sea Mosses and Wild Plants*, with well-colored plates, written by Shirley Hibbard, editor of the *English Gardener's Monthly*, beside Mrs. Loudon's books and a score by less known writers who have scanned every nook and hedgerow of England for their favorites. Ask all the questions about gardening you please, for I desire nothing more than to see you and a host of other American girls learn to

love plants intelligently, ardently as Miss Hope Johnstone did, the Scottish gentlewoman who made flowers her life-long pleasure, who wrote about them, studied them, grew them, and thought it charming to go a journey of a hundred miles into a strange country to dig a basket of wild anemones of a rare variety from old castle ruins for her garden borders.

LUCY B. I. "Will the publishers of the *WIDE AWAKE* supply back numbers that have been misplaced?" Publishers usually make good any numbers lost in the mail, and copies lost after their receipt by subscribers will be supplied for twenty cents each.

2. "Does Anna Maria do all the things in her housekeeping that she tells us to do in ours? If so, she must be a *model* housekeeper." Anna Maria's next neighbor who gives the rules in those thorough-going papers certainly does try to keep house after the pattern she sets, as far as strength allows; making other folks do the same is another thing. The model is that of all good housekeepers the country over, and by the time you have learned how to spell correctly, and to keep house also, you will find it is easier to do things right than to leave them half-way.

W. H. V. A. 1. "What will prevent hang-nails!" After washing and wiping the hands, press back the skin around the nails and loosen it with the point of an ivory knife or scissors.

2. "How can one whiten the skin?" Bathe it in warm water with a teaspoonful of chloride of lime to the pint—rinsing with water that is slightly sour with lemon juice, and rubbing with a little vaseline or cold cream. If the skin is red and sunburnt, use the cold cream alone.

3. "What will remove freckles?" Hot chloride of lime water, made quite strong, one tablespoonful of chloride to the pint, rinse off with diluted lemon-juice. Use with great care, as the chloride is a caustic poison. Hot borax water made in the same proportion will sometimes take of the freckles, but must be used patiently, bathing the face ten minutes at a time, and often.

M. E. M. "How are calling cards printed from copper plates used for the purpose?" With a small heavy card press, worked by hand.

EDITH. "How much ought the manilla paper to cost mentioned in the June number of Anna Maria's Housekeeping, and what sort of a store ought one to go to to get it?" Almost any shopkeeper will let you have a quire for fifteen to twenty-five cents, or you can find it at the printing office, or a paper warehouse in the city.

2. "How long was William Penn governor of Pennsylvania?" Actually about seventeen years, though he held the title longer.

THE WISE BLACKBIRD.





## LITTLE BIOGRAPHIES.—PLEASANT AUTHORS FOR YOUNG FOLKS.

BY AMANDA B. HARRIS.

### XII.

CHARLOTTE BRONTË AND OTHERS.

ELEVEN pleasant authors—and they are but few of the many—and now the last paper is to come—the most trying of all, because there is so much to be said, and so small a space to say it in!

Not a word has been written about Charlotte Brontë and that completest work of hers, which should be read before her others, *Villette*. Not a word about George Eliot, largest-brained woman of the century. Not a word about Dickens, or about Thackeray and his masterpieces. All these and others must wait; and they can afford to, and so can you. Some day, with tastes matured, you will come to a full appreciation of them.

I have not forgotten Maria Edgeworth all this time. How could I, when so many critics and scholars are saying in print that the young people of to-day must read her books, and must not think them antiquated, because the advice and examples in them are good for all time? How could I, when my earliest girl acquaintance in a story was her Rosamond? A sort of representative girl she was too. I lost sight of the actual Rosamond years ago, but her kind is always at hand—the impulsive, heedless one who means to begin the day by doing right, but is sure to go wrong before she knows it. Then there were Frank and Harry, Lucy Lawrence, Simple Susan, and Ben. I recall them as in small, leathern-covered volumes, with such titles as *Popular Tales*, *The Parents' Assistant*, *Easy Lessons*, *Moral Tales*; and I first saw them while searching through a large, old-fashioned book-case, one lonesome day away from home, after something which a child could understand. They were on a shelf, with Mrs. Barbauld's *Evenings at Home*, which I thought delightful reading, and consequently have held Mrs. Barbauld in grateful remembrance ever since.

In just such an old library, along with the *Spectator* and *Sir Charles Grandison*, you will, perhaps, find them; and you ought to be sure of them, and her sketches and novels of Irish life, in your town library.

Miss Edgeworth was one of the earliest writers for the young, and all her life she had the young right about her, under her own roof, for of brothers and sisters she had twenty-one, and she was the eldest daughter. The fullest account of her life yet published has just been written, under the title of *A Study of Maria Edgeworth*, by Grace A. Oliver.

Two other writers who are no longer living occur to me as pleasant ones for you to know. First, Mrs. Jameson. She was Anna Brownell Murphy, born in Dublin, in 1794, daughter of an artist, and died in London in 1860. Two of her books, *Sacred and Legendary Art* and *Legends of the Madonna*, cover ground which no other writer has so thoroughly gone over, and are just the ones to go to for what one wishes to hunt up on those subjects. And for a girl who has begun Shakespeare in earnest, I know of no volume so desirable to be reading at the same time as *Characteristics of Women*, in which are comments on his chief female characters, classed as characters of intellect, passion and imagination, the affections, and historical. More profound criticisms have been made than hers, but hers are a help, and it is worth while to see what a cultivated woman, of fine taste and ardent feelings, thought of Miranda, Ophelia, Imogen, Portia and those other creations of the great dramatist. To know more about the life of Mrs. Jameson, read the memoirs of her, by her niece, Gerardine Macpherson, and Mrs. Oliphant.

Next, Mrs. Gaskell (Elizabeth Cleghorn Stevenson), who was born in 1810, and her birthplace in that famous Cheyne Row, Chelsea, England, which will always be remembered from the Carlyles and Leigh Hunt, who were neighbors there. In 1832 she married Rev. William Gaskell, a Unitarian minister, and went to live at Manchester. Her first novel,



*Mary Barton*, is a story of factory life; and *North and South* is on the relation of masters to laborers. Besides some shorter stories, she wrote *Ruth*, *Cranford*, *My Lady Ludlow*, *Sylvia's Lovers*, which is her most carefully written, artistic and powerful work, but with such heartbreak in it that it leaves a painful impression, and a novel unfinished when she died, *Wives and Daughters*, which it is worth while for every girl to read, for the sake of knowing that charming Molly Gibson, who is so natural, unspoiled and true; the girlish girl whom older people love and everybody admires, but can never tell the reason why. *My Lady Ludlow* is for girls, too; and there is *Cranford*, which has become one of the little classics as much as *The Vicar of Wakefield*, or *Rab and his Friends*. One should not fail to read it. She also wrote the biography of her friend, Charlotte Brontë, which is probably more widely read than her stories.

Mrs. Gaskell, who was very much beloved, is described as a charming, brilliant-complexioned, but quiet-mannered woman, thoroughly unaffected, thoroughly attractive, and so modest that "she blushed like a girl" when one of her books was praised. She died in 1865, and was buried at Knutsford, Cheshire, the little village where she spent her early life, and which is supposed to be the "Cranford" of the story; the place where she grew up among those quaint spinsters and widows, and perhaps first knew *My Lady Ludlow* herself.

It was of this novelist that a famous French woman, herself a writer of powerful novels, said: "She has done what neither I nor any other female writers in France can accomplish; she has written novels which excite the deepest interest in men of the world, and which every girl will be the better for reading." And some one else speaks of the "violet-like bashfulness that hangs almost like a perfume upon the presence" of some of her heroines, while a discriminating critic places her qualities as a novelist in this order—purity, truth, force and individuality. Does not all this prepare you to like her?

When the name of Jean Ingelow meets your eye you will think of *The high Tide*, *The long white Seam*, and *Seven Times One are Seven*; in one word, of poetry. But her prose you will wish to have, too. Her first novel, if novel it can be called, *Off the Skelligs*, shows us her early life and home. She was born in Boston (Bodolph's town), up in Lincolnshire, and the Lincoln fens and flats, its tidal rivers and the sea, are all through her verse; but more fully is her childhood in that peculiar story. How fresh and real, how simple and vivid the description in the early pages! The minster was most likely St. Bodolph's church itself. She is writing in part for children, but she does not write down. Delicious prose it is, as you will see.

"What a world those windows opened out to us! They looked into the minster yard. It was smooth, and paved with flagstones, and in its midst rose the great brown minster, the old minster that was full of

little holes, and had a bird's head peeping out of each. . . . Mompey was exceedingly good to us, especially to me, whom he carried about as if I had been a doll, took me up the tower stairs in his arms, and showed Snap and me the great bells when they were ringing, and filling the whole chamber with a humming noise, as if all the bees in the world were swarming there, and let us put our fingers into the holes where the jackdaws and the sparrows built and feel how warm their eggs were."

"Mompey" was the Rev. Mr. Momperson, and "Snap" was her little brother.

After this story, which dragged slowly along, came its sequel, *Fated to be Free*. This also moves leisurely, and like the first is not constructed according to any principles of art in fiction. Since then, there have been *Don John*, which has two boys hopelessly mixed up in their infancy to the almost fatal loss of their identity, and *Sarah de Berenger*, which is her latest.

They are not stories which take a powerful hold on you. You can easily lay one down, and when you take it up again it is with no absorbing interest. Most of her prose comes rather under the head of "studies," except her *Mopsa, the Fairy*, and some minor things; for she, like Kingsley, Ruskin, MacDonald, and Miss Muloch, has added one delectable tale to the lore of fairyland. She can never be a great or popular novelist, but she is one of the sweetest, most gracious, most refined of English women writers; and her work, whether in prose or verse, has the qualities that belong with such womanhood.

In her preface to *Fated to be Free* she tells why she writes as she does:

I have not aimed at producing a work of art at all, but a piece of Nature. I have attempted to beguile my readers into something like a sense of reality. . . . It seemed proper, indeed, to crowd the pages with children, for in real life they run all over; the world is covered thickly with their little footsteps.

Now, you are reading to become acquainted with them, and see them grow up. They are not artistic and not consistent, but what children are?

Miss Ingelow is fifty-three years old, and is a most lovable woman. She has a house in Kensington, in the midst of a garden full of flowers, and three times a week she furnishes what she calls a "copyright dinner," from the money earned by writing, to the poor and the discharged convalescents from hospitals who have not found employment.

Another, who has sometimes made her home in Kensington, is Ann Isabella Thackeray (since 1877 Mrs. Ritchie), daughter of the great novelist; one of the "my little girls" he used to fondly mention; one of those meant in that last verse of *The white Squall*:

And when, its force expended,  
The harmless storm was ended,  
And as the sunrise splendid  
Came blushing o'er the sea,  
I thought as day was breaking,  
My little girls were waking,  
And smiling, and making  
A prayer at home for me.



She has written several pleasant stories, all with a mild sort of atmosphere about them. *The Story of Elizabeth*, *The Village on the Cliff*, *Old Kensington*, which pictures faithfully that place where so many kings and queens lived, *Blue Beard's Keys*, or *Fairy Tales retold*, in which she has made some of the old nursery tales over, placing them in modern times with modern people in them; and *Miss Angel*, giving the artistic career of Angelica Kauffman, with a historical picture of that period when Doctor Johnson and Sir Joshua Reynolds were chief figures in the choice society about London.

She too is a modest and winning gentlewoman, of that type to which Mrs. Muloch-Craik belongs, and so many whom we honor and whose writings we delight to read.

Then there is Mrs. Oliphant, not English by birth, but Scotch, who writes what one might call such well-bred novels—and, oh! so many, that nobody knows where to begin in speaking of them. *Young Mrs. Grave*, *The Primrose Path* and *Katie Stewart*, are the favorites of one girl of wide reading. Another will have it that *Valentine and his Brother* is one of her best pieces of work, where the old story of a child stolen by gypsies is the momentous event on which the action depends; for this writer always has a purpose when she starts. There is always with her a central idea to which everything else is subordinate, on the principle laid down by Miss Muloch (referred to in a preceding paper); and it would be next to impossible for her to change her plan, or ramble off in an uncertain way and let things happen, as Sir Walter Scott said he did in *Waverley*.

Her books take us into the family and show us real English domestic life, and Scotch likewise; they show us matronly mothers, brothers and sisters, young girls in their homes, as in *The Athelings*, where besides the more everyday experiences there is brought out all the flutter of expectancy, the tumult of feeling and final rejoicing over the daughter who is making her first literary venture.

Those who are fond of her novels—and Mr. Darwin was one of those—class them as good, better, best, but “always good,” only a difference in degree. It takes time to read them, but there is a great deal of quiet enjoyment to be had as you slowly follow the fortunes of her Brownlows, and Athelings, and others. You have opportunity to get well acquainted with them; you go comfortably along. She is a literary artist, and knows just how to manage her materials; what figures should be kept in the foreground, where the lights should be strongest and where the shadows heaviest. She is not fragmentary or abrupt; you do not find yourself uneasy for fear that she will not carry matters easily through. You can always trust her to know what she is doing. To read Mrs. Oliphant's books is like journeying in

an easy carriage through a pleasant country, nothing on your mind to trouble you, and at your leisure to look about and enjoy yourself.

It is the business as well as the pleasure of her life to write books. When one is finished she begins another; it would even seem that sometimes she has two or three in hand at the same time. She has published more than fifty novels, besides editing one series or more and doing a vast amount of other literary work. There has not been much said concerning her personal history. A recent number of *Blackwood's Magazine* has a paper about her, called *A little Chat about Mrs. Oliphant*.

Out of all the writers of English prose there remains space for but one more, Philip Gilbert Hamerton, essayist, critic, painter; author of some of the most charming books of the present century. Some of them are technical, and may be put off; but others it is none too soon for you to read. You might begin with *Chapters on Animals*, which is warm with love for bird and beast, full of incident and criticism and bits about art—something to make you think, and cultivate your taste, and appreciate the winged, and the four-footed creatures around us who are on a lower plane than we are. You will be kinder to horses than you have ever been before, and you will value more your faithful dog—the canine “heart of inextinguishable love.”

*A Painter's Camp* is a fine and enthusiastic description of Highland scenery, before William Black had begun to write so much about it. *The Sylvan Year* is a note-book record of a whole year in France; of the country as seen by a painter; about the larch woods, the wheat fields, bud and flower and fruit, birds, and what the poets have sung of nature. *The Unknown River*, also in France, is his voyage of discovery in the year 1866, in a canoe made by himself of paper on a frame of laths, with only his dog Tom for companion. “For the first time since his waters flowed, the Unknown River has been navigated,” he says, in closing his most fascinating narrative.

France is the locality of yet another volume, *Round my House*, written while he was living in an old chateau, and telling about his human and his dumb neighbors, the ways of the people, social life—everything that the title would denote. His wife is a French lady, which may account for his liking for that country.

*The Intellectual Life* and *Thoughts about Art* are helps to mental and art culture, which a growing student with aspirations that the young and earnest have, will find strength and stimulus in.

He has written one juvenile, *Harry Blunt*, in which it is supposed that some of his own early experiences are told. He is in the prime of manhood—not yet fifty—and is said to look like George MacDonald.



## THROUGH A MICROSCOPE.

BY MARY TREAT.

## XII.

## RHIZOPODS.

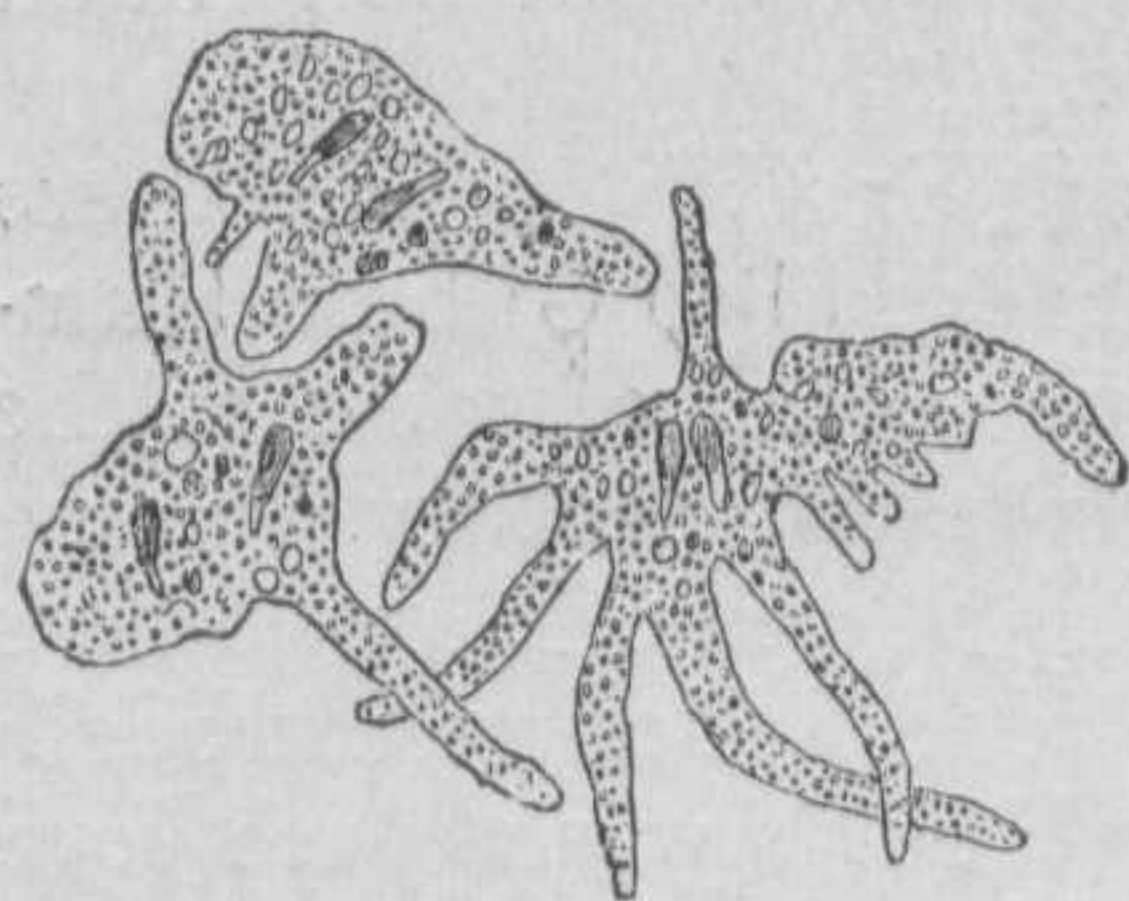


FIG. 1. AMŒBA PRINCEPS. IN DIFFERENT FORMS.

unformed mass of jelly-like substance, yet these rhizopods seem endowed with something more than simple life.

Let us take the lowest of these lowly creatures, the *amœba*, or proteus, which we may find during the summer in almost every fresh water pond. I cannot describe it, for, like its namesake, it is constantly changing its form, slipping away from us, as it were, right before our eyes, and assuming a new shape. As Proteus of old could assume any form, either plant or animal as he pleased, so our *amœba* can assume various forms at pleasure.

You will remember that Homer introduces Proteus in the fourth book of the *Odyssey*. He makes him the servant of Neptune, and says his office was to take care of the seals or sea-calves. And who knows but his namesake may have some such office among the curious beings of the microscopic world which is peopled with as many strange creatures as those we read of in ancient mythology?

We frequently see our proteus adhering to a leaf of some water plant, when it looks like a little ball of jelly; and while we are looking at it, it pushes out an arm here, and now another there, and still another, as if feeling for something. (Fig. 1, *Amœba princeps*.) Not finding anything to its taste, it moves or crawls along with its temporary arms extended—all the while changing them, throwing one out on this side, then on that, then contracting and pushing out in another place. It seems to be actively in search of something. At last it has reached a moving diatom with one of its long arms, which it immediately wraps around it, and now the other arms are contracted and the creature actually folds itself around its dinner! He turns himself outside in, and makes a temporary stomach, and proceeds to digest the soft parts of the diatom. After he has extracted all the nourishing

part, he squeezes or pushes out the clear, transparent shell, and starts in search for something more.

It is not known to a certainty how the *amœbæ* are produced, but this much is known: If a portion of the body is detached from the rest, it does not die, but becomes an independent *amœba*. If a portion of one of the arms becomes separated from the main body, it does not seem to incommode the creature in the least, and the small part soon begins to extend tiny arms and behave in every way like its parent. And this may be the only way in which the children of Proteus are made—veritable children of his own flesh.

How strange it seems that a jelly-like mass of substance without form or organization should be endowed with life and sufficient sense to go in search of food and have the power of selection.

Life manifested in the lowest animal or plant is just as wonderful and hard to understand as that which pervades the higher animals.

Some of the species of the fresh water *amœba* live in shells of various forms and patterns. One which we often see has a little house made of tiny particles of sand and minute bits of shell soldered together with a kind of cement which hardens in water; these are vase or pitcher-shaped and always look rough on the outside.

We may always know the different species by the forms and patterns of the shells in which they live. Some have very regular shells and prettily marked. These are usually rounded or arched on one side and flat on the other.

When you are looking for various microscopic objects in pond water you will often see these tiny shells among the sediment on your slides, and if you will patiently wait a few moments you will soon see delicate, transparent arms slowly pushing out on every side like cautious feelers. (Figure 2, *Testaceous forms of Amœban Rhizopods*.)

But the most beautiful forms, and by far the great-

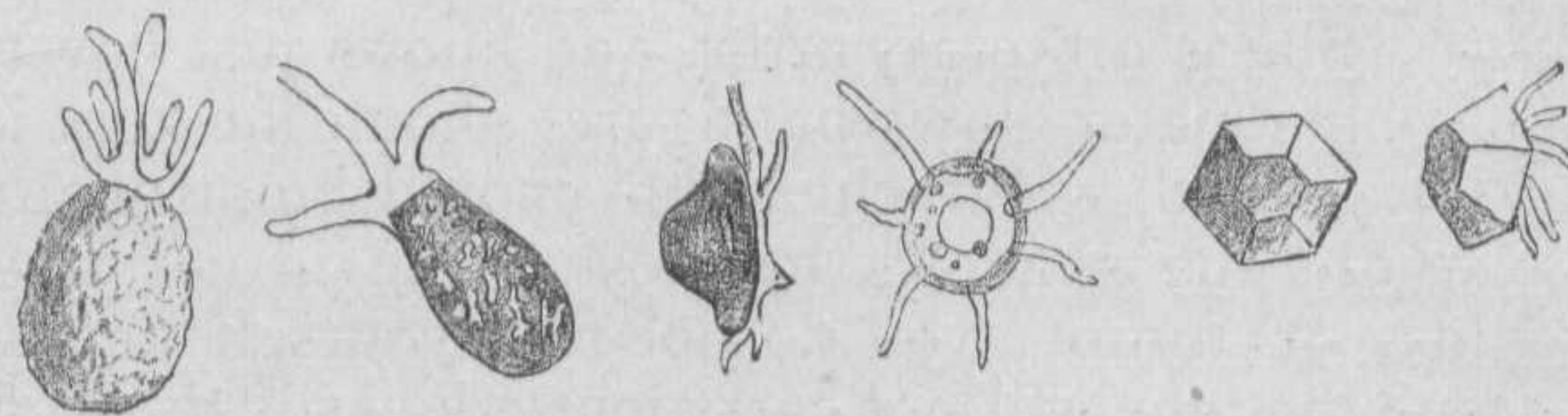


FIG. 2. TESTACEOUS FORMS OF AMŒBAN RHIZOPODS.

est variety of these microscopic shells are found in the ocean and in marine deposits. If we look at the seaweeds which grow on the rocks we may see many



white specks adhering to every part of the plants. With a lens we find the minute specks are spiral shells of many species belonging to the class *Foraminifera*, and very closely allied to the *amæba*. The shells are of most elegant form and pattern. The large sea-shells which we so much admire are not half so lovely in form or color as these seen through a microscope. Some of the living animals and the castles in which they dwell are crimson in color, others a delicate pink.

Let us take one of these living shells while it clings to the sea-weed and carefully cut off the smallest portion of the plant to which it adheres, so as to disturb the occupant as little as possible; and now place it in the live box with some of the salt water and we shall soon have a most beautiful sight.

See, the creature is throwing out delicate, transparent threads or filaments in every direction, like fine-spun glass. How charming it looks with the beautiful shell in the centre, surrounded by this moving, filmy halo, and how slowly and cautiously the filaments are extended! He is not a heedless, reckless creature, rushing into needless danger, but a quiet, timid citizen. Although he was such a long time throwing out his misty arms, when he scents danger he withdraws them as quick as a flash. The least jar of the live-box, or a little wriggling larva—much too large for him to manage, however—are sufficient to make him take in all of his lines; but when quiet is restored, they are again stretched out. And for what purpose are these slender filaments extended? Ah, an innocent animalcule has become entangled among the shimmering, filmy threads, and now the threads coalesce, run together like the arms of *amæba*, and disappear, and the animalcule is drawn within the walls of the beautiful castle, and we are left to conjecture the fate of the little victim. (*Figure 3, Rotalia ornata*, with filaments extended.)

These tiny creatures have been so numerous, way back in the early ages of the world, that entire strata of rocks, several feet in thickness, in various parts of the world, are made up of their skeletons. The city of Richmond, Virginia, is built over rocks, composed largely of the minute fossils of *Diatomacea* intermingled with the *Foraminifera* and others.

A single prepared slide of these fossils will afford entertainment for an entire evening, so great is the diversity of form and so many hundreds

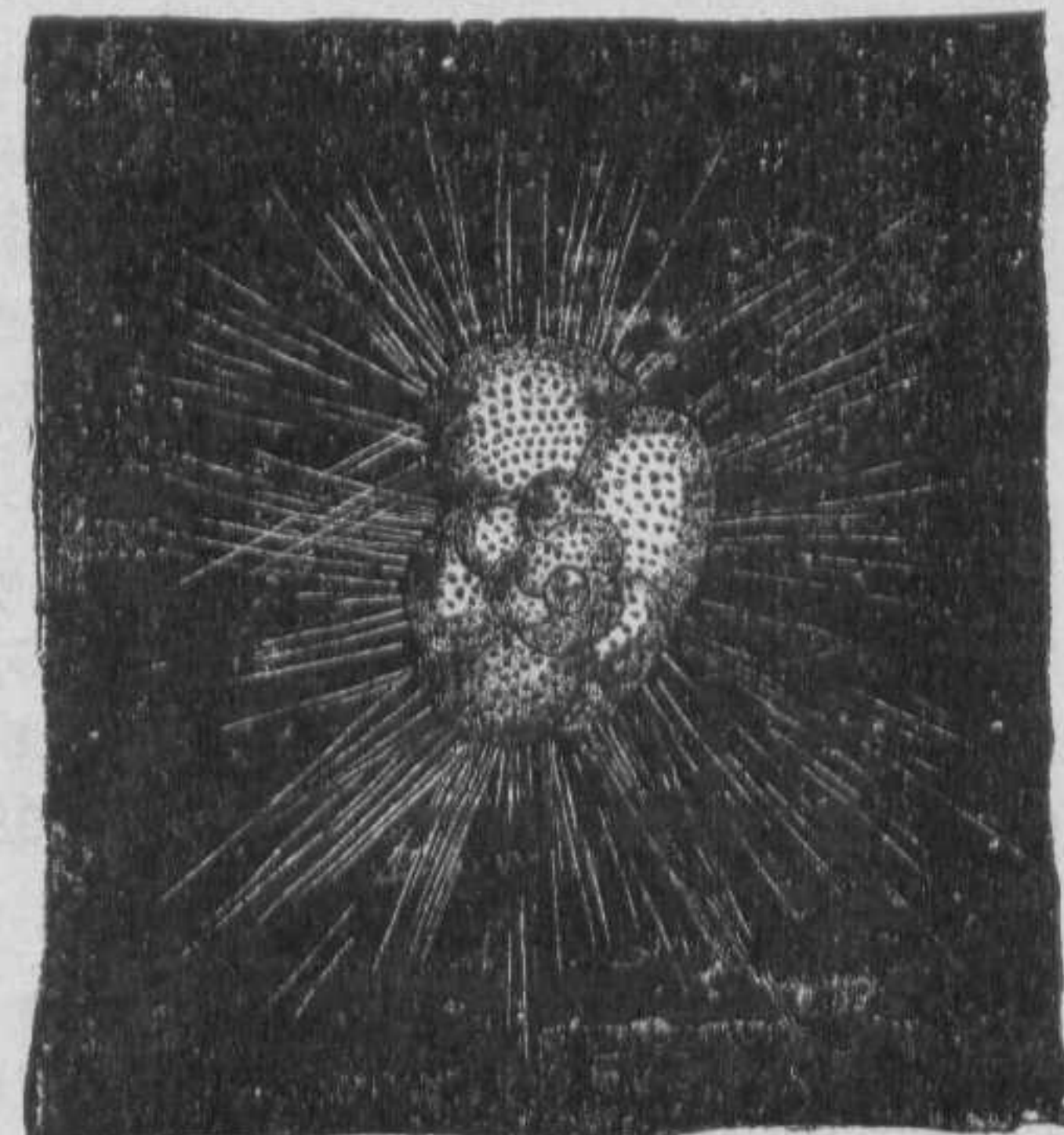


FIG. 3. ROTALIA ORNATA.

on one slide. The Bahama Islands furnish the finest specimens of these fossils. The slides can be procured of any large dealer in optical instruments, or, what is still better, the young microscopist can soon learn to prepare them for himself, as ample directions are given in the books on the microscope.

In bidding my young readers adieu I shall not lose entire thought of them, but often when I am engaged in looking through the microscope, I shall think and ask myself, "Are they, too, absorbed in this pleasant work, and how many will become true workers and original investigators in this great field?" We shall all know in due time, for no earnest worker in any branch of science can long remain unknown. He will be found out sooner or later. A devoted student in microscopy will become so happy over the marvelous creatures and their curious ways that he cannot keep his pleasure to himself.

## FAMOUS TRIALS.

BY BENJAMIN VAUGHAN ABBOTT.

### XII.

JOAN OF ARC: WITCHCRAFT.

ALL members of the Reading Union know the general story of the famous French heroine of the fifteenth century, and have heard the familiar conundrum: *What was Joan of Arc made of?* *Ans. Maid of Orleans.* They have read how she grew up a plain and untaught country girl, during a time of quarrels and wars; how she came to believe that she

saw visions of the Virgin and Saints, and heard voices commanding that she should go to the assistance of the king; how she volunteered to lead the army, and served so bravely and successfully that the enemies of King Charles the Seventh were routed, and he was crowned, and was established on the throne; and, how in a later battle she was taken captive, and was afterwards tried, condemned and burned. They will, perhaps, like to know how it could be that so patriotic, useful, yet modest and innocent a young woman as she is described should be put to death as a criminal.



To ascertain the exact truth about matters which occurred so long ago, is not easy. The name usually given to the heroine, "D'Arc" (written as if she were of noble family), is probably a mistake; the true name is said to be Darc (in one word), and her parents were poor country people. There has been dispute whether she accomplished, in military affairs, anything more than to arouse the enthusiasm of the romantic French soldiers by the idea that a young and lovely woman, divinely inspired, was their general. One learned man has even doubted whether she was really put to death; he thinks another person was deceptively burned in her stead. But accounts of her trial have been preserved which are quite explicit.

Jeanne Darc, or Joan of Arc, was taken by French and English troops who were fighting as allies against King Charles the Seventh of France, and his forces. She seems to have been sold, as it were, by one military captain to another, and was held awhile at Rouen as an English captive; but ere long a demand came from France that she should be tried for witchcraft. The king of England — very disgracefully, according to modern views — consented. Why that king of France, whom Jeanne had so signally assisted, did not interpose to protect her, is not easy to see; perhaps he lacked moral courage; possibly he shared the belief in witchcraft, then very prevalent, so fully as to think that even assisting him to attain the throne was criminal if done by sorcery. Probably a sovereign or general of the present day would repudiate any person who should attempt to aid him in gaining victory by means of secretly poisoning the food or water of the opposite army, and would allow such person to be tried for the poisoning, notwithstanding the motive for it; and King Charles may have regarded the charge that Jeanne had used magic arts in his behalf, in somewhat the same way. Then again the trial was not had in a court of law, or before the King's judges, but was conducted before ecclesiastics, the officers of the Inquisition, the chief manager being the bishop of Beauvois. The accusation was a document long enough to fill three pages of *WIDE AWAKE*. It charged Jeanne with having avowed that various saints — Gabriel, Michael, and many others — had visited her from time to time, bringing commands and revelations from God, such as the order to volunteer to command the army, also to assume man's clothing, under which commands she had performed her military acts. According to the custom of the time, she was very harshly and unjustly interrogated by her judges, who used all ingenuity and severity to entangle her in contradictions or admissions. At length they announced their decision that she had invented the apparitions and revelations, that she was a superstitious sorceress, and that she must recant and submit to the Church, else she should be burned. According to accounts of the trial they deceived her in various ways. Thus when she was urged to submit to the Church, she expressed

a willingness to do so, and the judges wrote a short and simple paper of submission, which they read over to her. But she could not read or write; and when the time for signing it came, they cunningly substituted a long confession of a great variety of misconduct, which she signed, supposing it to be the brief submission which she had heard. This paper included an admission of guiltiness in wearing man's clothing and armor, and a pledge that she would no longer do so. She signed it without really knowing what it contained. Soon after her jailers, at night, took away her woman's clothing and left in its place her masculine apparel, and she, having nothing else to wear, and not understanding the trick intended, put on the latter. The judges then called her to account for having broken her written pledge. She defended herself forcibly and touchingly; but as her condemnation had been determined, all she could say was useless. She was sentenced to be burned, and this cruel sentence was carried into effect.

The absurd and superstitious folly of trying and executing people for witchcraft was not confined to France. The idea as to witchcraft seems to have been that a person could, by making some bargain with evil spirits, obtain supernatural powers of doing mischief of various kinds; accordingly any one who had a mysterious illness or suffered any trouble which he or she could not understand, was apt to complain of some neighbor as a witch, and the charge was, of course, almost impossible to be disproved. For about a hundred and fifty years in England there were occasional trials for witchcraft. One famous case occurred before Lord Chief Justice Hale, who was in other matters a very learned, wise and humane judge, but who shared the common delusion as to witches. Two widow women, named Rose Cullender and Amy Duny, were brought to trial before him for bewitching children. Very absurd stories were related by the witnesses. One was that Amy Duny, in the form of a toad, had haunted one of the children, but the mother by order of a witch doctor had cast the toad into the fire, upon which it exploded like gunpowder, and next day Amy Duny was found to be very badly burned. Another was that by their magical arts the witches had filled the bodies of some of the children with crooked pins. There were other charges of their having made the children sick, lame, dumb, etc. Chief Justice Hale told the jury that undoubtedly there were such things as witches, and that they had only to consider whether these children had been bewitched, and whether the prisoners were guilty of it. The jury found them all guilty. Next morning the children came to Judge Hale's house, all quite recovered, and they declared that they began to recover just after the verdict of guilty was rendered. This, which people nowadays would consider strong evidence that the children were either under an extraordinary delusion, or else were parties to a cheat and conspiracy, was deemed by the judge a reason for



believing that the verdict was a just one. And the two unfortunate women were hung a few days afterward.

There were many similar trials, and historians have estimated that about thirty thousand persons suffered death in England on charges of this kind during about a century and a half. At one time an officer was appointed called the "Witchfinder." His method was to cast the suspected witch into a river or pond. If she sank, he pronounced her innocent; she was, however, usually drowned. If she floated, he declared her a witch, and she was put to death. In Scotland, also, there were many of those trials, and a number of poor friendless creatures suffered death under the same superstitious belief. Neighbors who had mysterious diseases, or whose cattle died, or whose crops failed, or who had other calamities, could think of no better solution than that some decrepit, homely, friendless old woman was bewitching them; and to detect the witch and put her to death was supposed to be a cure for the troubles, whatever they were. It is lamentable to think that the same cruel superstition prevailed for a short time in this country — even in Massachusetts.

The early settlers who came from England during the time when the belief in witchcraft prevailed, brought it with them, and, about 1688, a great excitement on the subject arose, which continued for several years. In an early and noted case some children named Goodwin were believed to have been bewitched, and a poor, half-crazy Irish woman was tried and executed for the offence. The excitement spread until at length, in one year, twenty supposed witches were executed (one of whom was a clergyman),

and as many as three hundred and fifty persons stood accused.

Educated people, especially lawyers and judges, now understand that there is not really any such thing as witchcraft; that is to say, there is no way possible of making compacts with evil spirits to obtain supernatural power of doing mischief, and no one could now be tried as a witch, though persons are sometimes tried for cheating by pretending to be possessed of magical powers, and obtaining money by professing to tell fortunes, recover lost money and the like by magic arts. What, then, are the uses of knowing about witchcraft? One is to enable us to instruct uneducated people, of whom there are some who still believe in the "black art." Among the negroes in this country there are many who are superstitious in this respect, and a London paper of June, of this year, says that on the African gold coast fifty persons were lately burned to death for witchcraft. Missionaries are slowly teaching the barbarous nations better. Another use is to enable us to understand allusions in literature. In Shakespeare's plays, for instance, witchcraft is often mentioned; and the beautiful poem by Whittier, the *Witch's Daughter* — Mabel Martin — could scarcely be understood by one who had not read some account of the trials for witchcraft in New England. A third use is to render us cautious how we trust too positively to what we believe and do at the present day. It is conceivable that, three or four centuries hence, mankind will read accounts of how criminals were tried, found guilty and punished in our day, and will think them almost as strange and senseless compared with the better ways which will then be known, as trials for witchcraft now seem to us.

## A BOY'S WORKSHOP.

BY A BOY CARPENTER.

### XII.

#### CABINET.

I HAVE often been asked to describe a "Cabinet for Specimens," such as I made for minerals. It would be equally good for shells, eggs, coins, or even for a bookcase. The shelves hold the specimens protected from dust with glass doors, and from meddling fingers with a lock and key. The cupboard (or drawer if preferable) below holds duplicates useful in making exchanges, and the needful tools for the specialty which interests you.

The cabinet of course can be made of black walnut

or any other hard wood, but for lightness as well as cheapness I used pine (stained) and put in a back of dark-brown cambric instead of wood, the cambric costing fifteen or twenty cents, where the wood would cost nearly a dollar and a half.

I can't give you close estimates about lumber either as to price or lengths, because at different mills boards vary greatly in dimensions, and values at the West or in Maine are unlike those in cities. I will therefore describe my own, feeling sure that by this time if you have made all the other articles in the series you can alter the pattern I give you, or follow it accurately, according to the purpose you have in view.

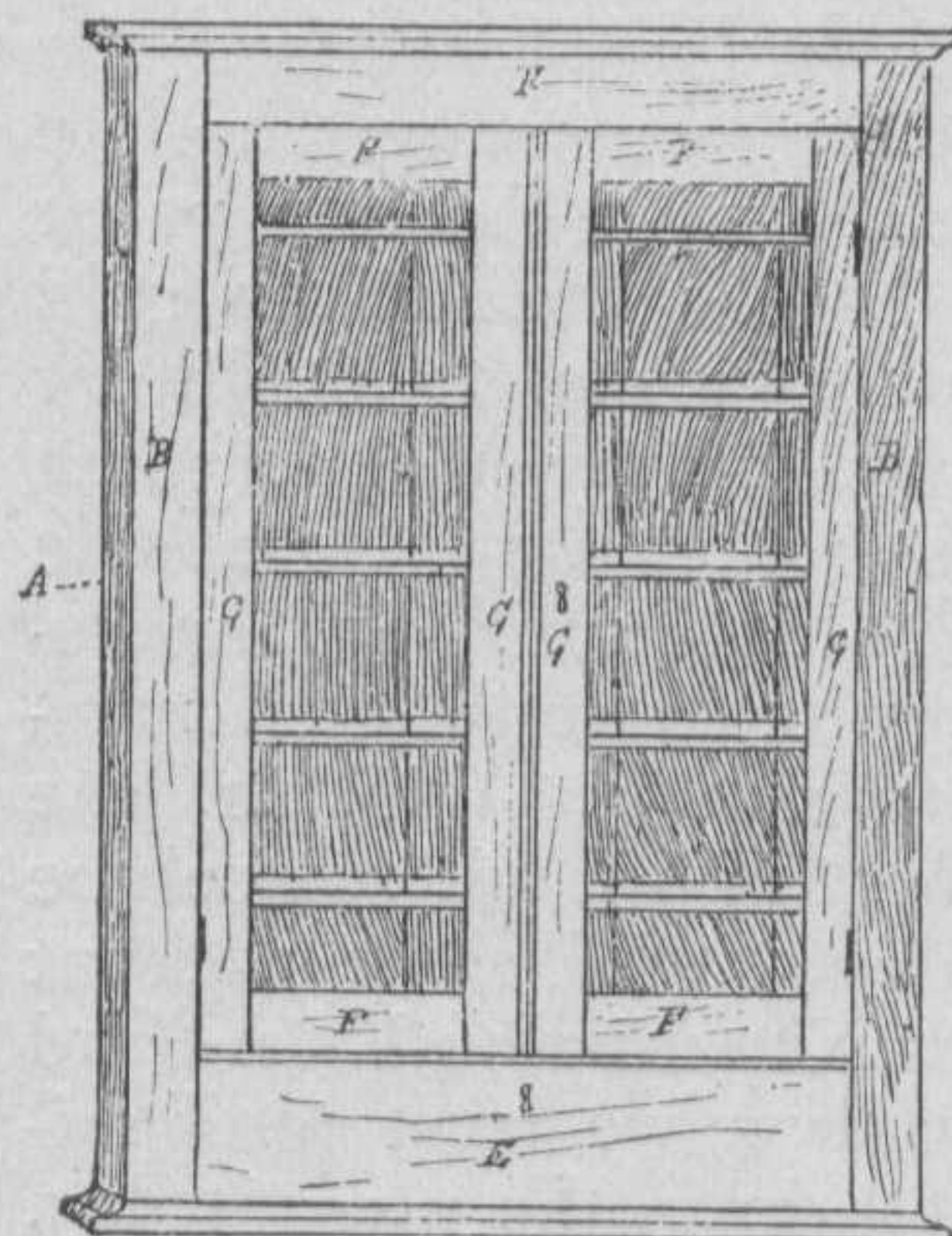


My cabinet fits easily in an alcove six feet, six inches high, and four feet, six inches wide; and is large enough to hold an interesting collection. For convenience in cutting, the seven boards I used were selected according to the following dimensions:

- A — 12 feet by 12 inches.
- B — 6 feet by 10 inches.
- C — 8 1-2 feet by 12 inches.
- D — 12 feet by 12 inches.
- H — 4 feet by 13 inches,

and 2 boards for shelves 8 feet long by 1 foot wide.

If possible, get three-fourths-inch board, as it is both lighter and cheaper, but inch-board is often easier to get and my measurements are for that. Get it all as clear as possible.



THE CABINET.

Besides the boards you will need two pieces of two-inch moulding six feet long, and two pieces of three-fourths-inch about eleven feet long, to hold the glass in the doors, and three pair of hinges; also lock and key if you desire all to be secure.

Take *A*, divide in two, plane edges and square ends for sides.

Take *C*, cut two boards, each four feet two inches long, and one foot wide, for top and bottom.

From *B* cut two pieces six feet long, four inches wide (for sides of door casing), then from remainder cut strip three and one half feet by one inch, to go behind lower moulding for hinges of *E*.

From board *H* (which is four feet by thirteen inches) cut out block at *each end of one edge*, three inches long by one wide.

Nail *CC* on to top and bottom of *AA*, taking care to put top and bottom (*CC*) *on* and not between up-rights *AA*.

At point nine inches from lower *C*, nail board *H*, with the projection facing outward. On each side on front nail strips *BB*. You will find they fit into cuts made in *H*.

Nail the three and one half feet strip close to bottom *C* between *BB*.

From remainder of board *B* cut piece three and one half feet long; with splitting-saw divide this into two boards, one eight inches, one four inches wide. Nail the four-inch piece directly under *C*, between the *BB*. This finishes the front for the doors.

Now for the mouldings: from one of the two-inch strips cut piece four feet, four inches long; cut ends at angle of forty-five degrees; cut two pieces one foot three inches long: have right-hand end of one and left-hand end of other cut at angles of forty-five de-

grees, i. e., one half of a right angle. Cut a second similar set of mouldings, nailing one set to top, the other to bottom of cabinet.

The piece three and one half feet by eight inches is a kind of door, which is hinged to the strip behind the moulding at the bottom. In my cabinet I have it for a cupboard, as I said before, but you can put in a drawer in its place if you prefer.

For the doors, cut from *H* four pieces four feet, ten inches long by three inches wide, and four pieces one foot, nine inches long by three inches wide.

The best way of putting this together is of course to mortise it. To do this, draw lines at each end of one of the long pieces on the edge one fourth inch from each side; then draw lines *across* the edge at points three fourths and two and one fourth inches from end.

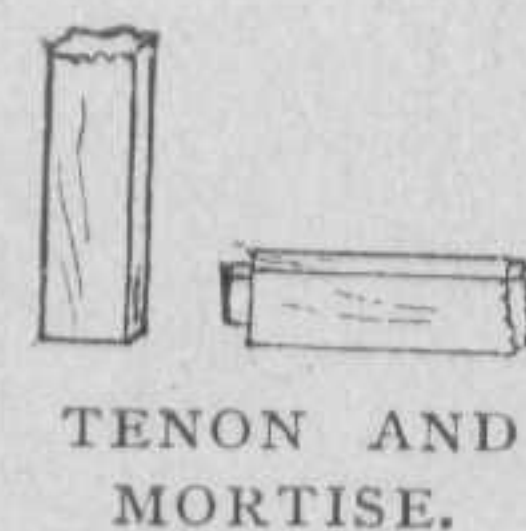
This rectangle must now be cut out. Bore three one half inch holes one and one half inches deep: then with chisel split out the remaining wood and smooth as nicely as possible. Repeat this on all the long pieces.

To make the tenons or tongues which fit the mortises, measure one and one fourth inches from ends of short sticks, and with try-square draw line all round the stick. On sides of stick saw in one fourth inch deep; on edges saw three fourths inch deep. Then, parallel to sides, draw lines one fourth inch from sides of stick on the end, and two more lines three fourths of inch from and parallel with edges of stick. Place edge of chisel just outside of lines and chip off the little blocks, gradually shaving the tenons down to the lines.

If this is nicely done, the tenons will fit into the mortises so that the side edges and ends of the four long sticks will fit snugly on to the short ones. Put a peg through long and short pieces at the tenons to keep them from coming apart.

This can be done in another way that is also somewhat easier, by cutting from the sides at the ends of the pieces squares three inches by three inches by one half inch and screwing together.

If you have only one light of glass to each door, there will be no need of a cross-piece, so you will simply have to put the moulding round on the inside of the door frames. If you have smaller panes, you will need the crossbars.



For the four shelves you will require you must cut the two eight-foot boards into four, and make cleats to support them. These are merely narrow strips of wood nailed on inside of *HH* (at the height desired) on which the ends of the shelves rest.

The staining is done by the rule given in a former paper, and the hinges and lock are set as in the tool cabinet.

About four yards of dark cambric tacked on the back will finish a neat, simple, but serviceable cabinet like the illustration.



## ANNA MARIA'S HOUSEKEEPING.

BY THE NEXT NEIGHBOR.

## XII.

## STARCHING AND IRONING.

I HOPE, Anna Maria, that you follow the old fashion of starching bed and table linen slightly, for things look better, iron easier, and keep fresh longer for it. Pillow cases and sheets feel cooler and more grateful for the finish starch gives them, and absorb less from the body. Nor need there be the waste of starch which half-taught servants find necessary. I never found one who had any rule for the amount used, whether there were a dozen shirts and sheets or only three; they guessed at the starch wanted, and some girls took pride in saying they used a pound every week with the washing. Clothes are better for just enough starch to give finish, not stiffness, and more than this injures the fabric. Of course shirts and collars are the exception, which need to be stiff to hold their shape.

Most of the starching is done when the clothes are rinsed. Shirts and fine linen or muslins require gloss starch, which comes in packages—common box starch answers for everything else; or if that makes too much an item of expense, flour starch, well made with bluing, will do for cottons and colored things. Make starch when the fine clothes are nearly done scalding; have a very clean bright saucepan to boil it in, for the least grease or rust will affect it, and stain the clothes. For each shirt, collar, and pair of cuffs, together, allow a teaspoonful of dry starch. Have your teakettle of water boiling fast; moisten the starch with one tablespoonful of *cold* water for each teaspoonful of starch; dissolve the lumps, then pour on the boiling water gradually, stirring fast in the saucepan on the stove, till all lumps and milky whiteness disappear, and the whole boils clear. Strain through a very clean coarse cloth into a large dish, and cover to cool. When collars and cuffs are rinsed drop them into the starch, and rub them in it as if you were washing them, so that it will be well rubbed into the fabric; wring them with your hands, or wipe the jellied starch from the surface and dry quickly. You must not hang out shirts and linen just starched on a breezy day, for, as the laundry maids say, the wind blows all the starch out of them; neither should you put them out in a fog or damp weather and expect to find them stiff when dry. Better dry things just as they are rinsed, and starch them next day when it is fine.

There will be starch left, but not enough for the rest of the washing. For muslins, add twice as much

hot water, and boil over again a moment. Dip muslins or laces into the starch when cool enough, press, or clap gently between the palms, and shake the moisture from each article without wringing, which frays the delicate substance. Fine things look much clearer for being waved till dry, or drying in a breeze, and taken in the moment when dry. Now for the common washing: allow a dessert spoonful of plain starch to each sheet and pair of pillow cases, and to each tablecloth. Make the starch as before, in larger quantity, and add it, a quart at a time, boiling hot to the bluing water. Don't put it all into the rinse at once, as some folks do, for then the first things rinsed will have most of the starch, and the last very little; but wring out a few pieces and put in fresh starch for the rest. Have it hot, because it is thin and mixes better so. Bring your clothes in quickly if it is a windy day, before they are dry, and finish them in the house, if you want any effect from the starch. Don't hang starched things where they will freeze. In winter dry your shirts without starch and finish operations in the house. Never let marseilles quilts freeze, for the forcible shrinkage injures the figure and splits the material. Old washerwomen tell me never to let clothes hang out when snowing, for "snow grays things," which may be from the ammonia in the flakes.

Boil brown or unbleached linens in water with a handful of hay in the boiler, to keep or restore their shade. For prints, especially the pretty, expensive percales which lose all beauty in ordinary washing, there is only one way of treatment. Tie a quart of bran loosely in a sleazy cotton bag, and boil it with three or four pails of water. When cool, take half to wash the dress in, using a very little fine soap on greasy places; don't let the garment soak a moment, but wash quickly, and rinse at once in the rest of the bran water, then in a pailful of lukewarm water, and dry in the shade on a clear breezy day; take in when damp, and iron at once. The bran cleanses the cotton and acts as starch besides. Any colors that bear washing at all, may be cleansed in this way. You should take a separate day for doing up nice prints, when the weather is just right, and you can iron them immediately. This is the French method of washing fine lawns and cambrics of delicate colors, and the Bon Marché, at Paris, that great establishment where you find everything a woman is likely to want for herself or her house, sells thousands of little bags of bran and oatmeal, for baths, and for doing up dresses. Common prints would look a great deal better than usual, if washed at once, one piece at a time, and



never allowed to soak, but hurried through the starch and on the line before another was put in the water. The exception is with new black, or black and white prints, which should soak ten minutes the first time they are washed, in strong salt water, a pound of coarse salt to a pailful of cold water.

In old times ironing was one of the fine domestic arts, like making cake and taking care of china. There is a pretty picture in some quaint correspondence of the last century, where a lady describes how she and her young friends met to iron their laces and linens at each other's houses, and how Lord Harry This and Sir Charles That, in their scarlet coats laced with gold, and their flowing shirt ruffles, lounged beside the ironing tables with jest and compliment while pretty Mistress Betty and Lady Susan, in muslin caps and kerchiefs, and flowered chintz gowns tucked up over quilted red petticoats, ironed kerchiefs, caps, and aprons, and crimped shirt ruffles till tea. In those days only the ladies of the family, or the head lady's maid, could be trusted to do up the fine muslin articles which made so much a part of a woman's toilet, and to this day it remains an accomplishment to iron well. It is ladylike work, for ironing requires strict neatness of all surroundings and deftness of hand. For all the increase of laundries till there is one in every new town, one can seldom be sure of having things washed, much less ironed, as they should be. Collars and cuffs come home with the streaks of last week's wear ironed under the polish; nice ruffled gingham are rough about the gathers, and show dull patches where the material was allowed to dry before ironing; plain underwear, napkins and pillow cases are so hastily done that one is uncertain whether they were touched at all.

I tell you, Anna Maria, all the little niceties, the finish of housekeeping, pay: the carefully dusted corners, the fresh napkins every day, the smooth glossy linen, the pillow-cases that wear the press of the iron in every thread and seam. Men feel the soothing, refining effect of this far-reaching care and order, even if they are heedless enough to destroy it in an hour; boys feel it, children *love* it, and crave it. When Bonnie was a little boy four years old, he used to insist on having the sheet turned down and the pillows spread smooth as hands could lay them, and then crawl in carefully, not to disturb the snowy smoothness, and lie luxuriating in the order and whiteness of his bed. The big boys have come home evenings and gone into their neat rooms, with the beds made up with fresh linen, the second time in a week, and the chuckle of content which escaped them, overheard in the entry, was enough to pay for all the trouble. It has been worth all care and pains to have them write, "There is something about home I miss everywhere. It seems as if things were cleaner there than anywhere else. I have lain awake Sunday mornings with my eyes shut, so I couldn't see the dust on the mouldings in my board-

ing-house, or the dingy curtains or the half-ironed towels they brought me, and have thought of home, with the white back stairs, where the clean carpet and the sheets, towels and tablecloths always seemed so fresh. I never knew what neat housekeeping was worth before. It's the one thing that makes a home."

Half the success of ironing comes from having the things in the right state to iron; neither too damp nor too dry. Sprinkling and folding them just before you iron won't answer. The moisture must have time to be absorbed evenly through the fabric. Sprinkle and fold clothes over night for Tuesday's ironing. The old rule is to "sprinkle fine," that is, in fine drops; but I hope you have one of the twenty-five-cent sprinklers, which does the work to admiration in half the usual time. Have an empty basket to hold things as they are folded, the large table clear and the kitchen in its best order. Clean clothes are certain to take a smirch if there is grime or dust in reach. Sort the towels, pillow-cases, napkins, handkerchiefs, aprons, all together. Beginning with the cases, sprinkle each, taking care that hems and corners are not left dry; spread each case lengthwise, lay half a dozen in a pile, smoothing out the wrinkles with your hand, and roll together tightly as possible. The pressure takes out the wrinkles and leaves less for the iron to do. Follow with towels laid together and rolled up the same way. It is better than folding each piece singly, for they do not dry so soon. Dust your basket well with a whisk, lay a large clean cloth in it, and put the folded clothes in, sheets and large things lowest, small things on the top, and cover close with another cloth. Colored things should not be sprinkled till an hour before ironing, and should not be laid with white clothes at all, as the colors may run with dampness.

To iron with comfort, you want a clean kitchen or laundry, good light, a neat stove, and hot irons. Have the table close to the heater, so that you need not walk back and forth for fresh irons; and it is a great convenience to have a swivel chair without arms, in which you can sit and iron part of the time. In hot weather, the best way is to first heat your irons on the common stove after breakfast, let the fire go out, and keep them hot with the kerosene heater. It is hard to heat cold irons by the kerosene stove, but, once heated, it will keep them piping hot a whole afternoon with one third of a gallon of oil. The heater can be on a stand—an old sewing-machine table, say—close to the ironing-table, and you will find it hastens work wonderfully to have plenty of hot irons in reach of your hand. You will need, on the table, a clean blanket and sheet to iron on, wipers and clean linen-covered holders which are cooler than woollen, a bowl of clean water and cloth to dampen spots.

Six irons are needed, of which two should weigh from eight to ten pounds, for sheets and table-



cloths, two six pounds, and two light ones having sharp points for ironing gathers. A pair of polishing irons for shirts are considered indispensable nowadays, and you can grind off the tips of middle-sized irons on your grindstone to make them. You must keep all your irons well polished, and nothing is more convenient for this than a block of sandstone, or part of a broken grindstone. Failing these, strew sand on a board and rub the irons over it. Then rub when warm with beeswax, wiping very carefully. See that your irons are in good condition before you begin. See that the heater is clean, and the fire well replenished. A tin cover for the irons while heating will quicken the process, and save the heat. See that no window or door opens a draft on the irons or the table. You will find your irons cooling vexatiously fast in a current of air. To work well or fast, your irons must be as hot as possible without scorching. Use them, if a little scorching, on rough towels or tablecloths, moving very quickly.

To iron a pillow-case, take it by the seam corners and shake out; lay it with the seam next you, and iron one side smoothly, first along the seams, then across; fold lengthwise and iron the other sides; fold once more along the middle, iron the fold smooth, and fold *across* the middle, pressing the folds with a heavy iron to have them sharp and nice, then hang on the clothes-frame, which should be dusted with a damp cloth, and have a clean white cloth to cover things.

When you iron a wrinkle into anything, wring the cloth in the bowl of water, dampen the place, and iron again. If a corner of a hem gets dry dampen that before ironing, in the same way, and you will have no faults in your work. Handkerchiefs and napkins you will iron all around the hem first, then across, always ironing the same way the threads of the weaving run, not cornerwise, or the article will be askew. Fold them squarely, and let a heavy iron stand on them a moment.

But all the heavy ironing should be done by an invention I hope to see in every kitchen as commonly as a stove—the family mangle. This is a pair of polished wooden rollers, working with cogs, like a clothes wringer, and sheets, tablecloths, towels, all articles without gathers, folded and put through, come out smoothed by pressure, without the heat and fuss of ironing. Most English houses have the bed and table linen mangled, the hems of sheets and pillow cases being finished with irons, and the gloss put on the damask by a second ironing. A small mangle costs ten dollars and would save its price in a year in fuel, to say nothing of the comfort of ironing without

fire in hot weather. Another convenience is a stout clamp or brace to hold the end of the skirt board steady while ironing, instead of resting it on a chair, which is uncertain support.

I have not told you how to iron a shirt or collar, because it would take an article by itself to do that. Neither patent polish or polishing irons, bosom boards or pleat knives will ever teach you how to iron a shirt nicely, unless you take care of twenty points in the work beside. Yet you can do it. I have known girls of ten and twelve years old who could iron shirts or collars neatly, and have sat beside the ironing board while an accomplished lady, a French and Latin scholar, turned off six shirts, faultlessly ironed and polished in half an hour with the certainty of machine work, every stroke telling, and, to the best of my recollection, she used neither polishing iron or prepared starch. Learn the rest first; to iron every gather in skirt, flounce or sleeve, to turn out ruffles like flower petals for smoothness, to iron bias bands, damping and ironing over the wrinkles till they fade out; to press clear folds with the heavy irons; to iron puffs with the little French egg-iron, or to fold in the middle, iron like a ruffle, and then erase the fold by damping it and running the tip of your sharp flat iron along its length; to iron strings of all kinds as if they were ribbons, and to do plain underclothes with the same preciseness you would the richest show embroideries.

I have not told you of any polishes to put in starch, for I have seen as fine work done without them as with them. Polishing is not a matter of butter or salt or gum arabic or spermaceti in the starch, though people use such things. The gum makes linen hold stiffness better; it does not make it glossier than starch properly used, and *well-boiled*. I will give you a few hints, however, for practice. If linen blisters in ironing it is because starch was not well rubbed into the fabric; touch the place with thick starch and iron over again. If starch cakes and sticks—either it was ill made, too much starch used for the water, ill-boiled or lumpy, or the iron is not warm enough, or is rusty and wants polishing and waxing, or you have used raw starch and not rubbed it well into the linen. If black specks appear on the surface, dampen and scrape them off with a knife, touch with starch and iron again, first laying a thin cloth over it for the first stroke or two. Iron always the long way of the threads in starched things; first iron straight into shape and dry, no matter how dull, then dampen with a cloth, go over with a hot iron, dampen and iron two or three times till the wrinkles disappear, and you will find out how polishing is done.



## HEALTH AND STRENGTH PAPERS.

BY PROF. D. A. SARGENT.

## XII.

## TRAINING FOR THE PRIZE.

**F**EW of our readers have not heard or read of the great walking matches and boat races that have been so much talked and written about during the past few years. Some have thought that these topics have received much more attention than their importance would seem to warrant. So they have, in one sense, but in another sense they have given us wonderful exhibitions of human strength and endurance, and shown us what can be done by careful training and right methods of living.

If you should try to run a mile at a quick pace you would soon begin to get out of breath, and your legs would feel as if they were made of lead. If you should continue to run, after these warning signs to stop, you would probably have a choking sensation in the throat, and fall fainting and exhausted on the track. This would be the natural result following any long-continued, violent exercise, which brings many muscles into action, such as rapid walking, running, rowing, swimming, etc. If, on the other hand, you had commenced moderately, slowly increasing the time until you could run at a steady gait for fifteen minutes, then begun as slowly to lessen your time and increase your speed, you would have found after a few weeks' practice that you could run a mile pretty rapidly without being exhausted.

Of course care should be taken to keep in good health, and strict attention should be paid to general exercise, diet, sleep, bathing, etc.

This in a word is what is meant by training. It matters very little whether the event you are preparing for is a foot race, a boat race, a ball match, or the accomplishment of some athletic feat; the first requisite for success is good condition, or in other words, good health.

To attain this desirable end under all circumstances is a difficult task, and it would be impossible to make suggestions and lay down rules that would be equally serviceable to every one. A few general principles are all we can hope to give in this brief article. In entering upon a course of training, the first thing to do is to take regular systematic exercise. Find out if possible where you are particularly weak and strengthen yourself in that part. Take general exercise enough to keep all the muscles and vital organs in good condition, but put your hard work into practice for the event you desire to take part in. If running, jumping, rowing, or whatever else you

may be practising, learn to throw yourself with determination and energy into the object you desire to accomplish. In this way you can train your muscles to obedience, and make them respond to the stimulus of the will.

Such efforts, however, must not be made too often, or you will soon lose the very power which you should try to gain. This leads me to speak of the importance of rest. Often the best way to rest the muscles is to change the nature of the exercise. If the exercise requires much nervous energy, or will-power, however, the best rest is in recreation and amusement, with little use of the muscles. This is something young athletes seldom understand, and in their eagerness to gain the coveted prize keep on exercising when exercise for the time being has done all it can for them. Next in importance to exercise is attention to diet. I do not mean by this that every one should try to eat the regular prescribed bill of fare, consisting of rare beef, stale bread and mutton chop, but that each one should give up for the time being such articles of food as are known to contain little nutriment, and to be very slowly digested.

These are roast pork, corn beef, fried sausages, pickles, condiments, preserves, pastry, beets, turnips, cabbage, carrots, etc., and hot bread of any kind. Many of these articles may be eaten with impunity while training, but the idea is not to eat what will simply do you no harm, but that which will do you the most good. For drinks, it is best to rely upon pure, cold water. Tea and coffee prevent waste of tissue, which in young men who wish to become strong it is most desirable to bring about. Cocoa and chocolate are apt to have a sedative effect, and ale, beer and milk soon prove a burden to the system. In fact, if you drink any liquid besides water you are likely to drink more than you really need. If you have exercised hard enough to perspire freely, you can satisfy the natural demands of the system by drinking as much water as will make up for the loss. Care should be taken, however, not to mistake local thirst, which is produced by the dry and heated condition of the mouth and throat, for general thirst, which arises from a great loss of fluid through profuse perspiration.

The former can be satisfied by rinsing the mouth with cold water, and taking several swallows to cool the throat. The latter may be quenched by drinking moderate quantities quite often. Never drink two or three glasses of water at one time, especially if much heated and fatigued.

With regard to bathing, the comments on swim-



ming in the July number of the WIDE AWAKE are sufficiently explicit.

As to sleep, this must vary in quantity to suit the temperament of the individual. Some require much more sleep than others, and it is impossible to determine upon an amount that will answer equally for all. A good rule is to go to bed by ten o'clock and arise as soon as you are awake, unless your sleep has been disturbed. In order that your sleep may be unbroken at night, it is better

not to indulge in any after dinner naps or morning snoozes.

The day before the race or contest should be spent in resting. Not absolutely in lounging about, but in freedom from practice and all excitement. Then when the hour of trial comes you will have an extra supply of nervous energy to draw upon as well as muscular strength. It is a well-developed muscular system, backed by strong lungs and heart, with plenty of nerve power, that always wins.

## DAYS AND NIGHTS IN THE TROPICS.

BY FELIX L. OSWALD.

### CHAPTER VI. (*Continued.*)

#### THE OLD HUNTER.

OH, please let us buy him!" whispered Benny; "we would have twice as much fun with a good hunting dog."

The old woman asked half a dollar.

"I'll give you a pound of white sugar," said the captain; "that's all he is worth."

"Oh, no, sir," said she; "I would rather eat him myself."

The captain at once put his hand in his pocket and gave her the half-dollar. "That dog is badly hashed up," he muttered, "but he is too good to be made into sausages."

The old lady gave us a dozen onions into the bargain, and grinned all over when she pocketed the money. Most of her countrymen seemed, indeed, to be in the merriest humor. In the centre of their own village-green they had piled up a heap of bananas, and whatever plunder they had saved from the ruins, and while the grandfather of the wigwam beat a sort of kettledrum, the children joined in a boisterous round-dance. Only one poor youngster snivelled and rubbed his eyes as he poked about the ruins of a demolished cottage.

"What's the matter, sonny?" I inquired. "Did your pretty cabin blow down?"

"Yes, it did," said he, "but to-morrow father is going to build a new one. No, no! it's something worse."

"Why, did anybody get killed?"

"Oh, no! we had no *casa-matanza*; ours wasn't a kill-house," said the little monkey; "but a year ago a gentleman gave me a *medio* (a six-cent piece) and I always kept it under my pillow; but last night we left in such a hurry that I forgot it, and now I cannot find it at all."



A JUNGLE-FOREST.



I gave him a real (about twelve cents), and two minutes after he had joined in the dance around the banana-pile.

## CHAPTER VII.

### EXPERIMENTS WITH TRAPS.

THE storm had ruined the town so completely that many of the white tradesmen were obliged to settle elsewhere; and if we had intended to remain in Las Vegas, we could have got homesteads for a couple of dollars, and building material for nothing; for the ground was everywhere covered with bricks,



A CURIOUS TRAP.

planks and shingles, besides broken furniture and household stuff. But as we only wanted to stay a couple of days, we contented ourselves with clearing the ground floor in one of the ruined houses, and gathering boards for a temporary roof. In the rafters of a broken frame-house we found all the nails we wanted, and our boys were in their glory; every now and then they discovered something or other to make our little house more comfortable — a bench, a box, a window-shutter, iron pots, and other kitchen outfits.

"Why, I wish we could find a cooking-stove," said Juan; "we would stay here forever and bake pancakes every day."

"Yes; and fry fish," cried Benny. "That river is just full of them, and I saw a lot of fine wild grapes. Won't we be happy!"

We had, indeed, quite a good time of it. The storm as usual was followed by a series of sunny days, and while I collected minerals, the boys gathered baskets-full of fruits and nuts which the tornado had scattered in every direction. On the second day one of the white settlers asked us to join him in a hunting expe-

dition across the river. "Are you going on a deer-hunt?" I asked him.

"No," said he; "we have here all the venison we want, but I am out of money and going to try my luck with my traps. The government agent in Valverde pays five dollars' bounty for a jaguar's scalp, and three for panthers' and wolves'."

"Are there any such creatures in this neighborhood?" I asked.

"Yes," said he; "there are plenty of them in the *lagotasso* (swamp-forest) over yonder; they have their hiding-places where no human being can follow them."

When we got across the river we saw that there

was indeed no lack of such thickets. Opposite Las Vegas the Tocantins River is joined by the Rio del Tigre, and the delta, or corner, between the two streams, is covered with a thick jungle of cypress, gum-trees, canebrakes, and underbrush, all interlaced and intertwined with a network of vines and creepers. It was a true virgin wood, and it puzzled us how we should find our way in and out; but Don Ruan, our companion, had hunted here all his life, and after following the river for about half a mile, we entered the thicket by a trail that seemed to have been kept open by deer, wolves, and other wild animals on their way to their drinking-places. Don Ruan carried a bag with two squealing little pigs that were

to be used as a living bait. His Indian laborers had dug two pitfalls, one of them near a *rossa*, as the Brazilians call a place where the underbrush has been destroyed by a forest-fire, but the other on the shore of a little lagoon in the very heart of the wilderness, where a thicket of Spanish willows afforded us a good hiding-place.

The pitfall was covered with brushwood so cleverly that nobody would have suspected the hidden traps, and for greater security the pig was not fastened to the brush itself, but to a little sapling overhanging the centre of the pit, for fear that its struggles might disarrange the cover. Its noise was to attract one of the numerous beasts of prey which the trapper knew to be lurking in the neighborhood, and it needed not much prompting; the swaying of the sapling and the tightness of its bellyband irritated it so much that it never stopped squealing. But minute after minute passed, and no sign yet of our expected guests. Were they all asleep?

Our pig did its very best to wake them, but it was possible that its voice was drowned by the incessant



screams of a mob of capuchin monkeys in the neighboring cypress-forest.

"What makes them yell so?" asked Benny; "can't we stop them somehow or other?"

"Hush! listen! they are coming nearer," said the trapper. "I shouldn't wonder if they have seen something: there's a panther or a puma coming this way. Hallo! I'm sure of it now," he added after a while, "and it's up in the tree-tops; yes, that's a jaguar coming to market for pork, and the monkeys after him. Watch that thick palm-tree over yonder; here he comes!"

We noticed the swaying of the branches, but did not see the jaguar till he leaped upon the next tree and faced about to get rid of his persecutors. A whole troop of capuchin monkeys was at his heels, and judging by their impudence, it seemed as if they had no idea what sort of game they were pursuing; they charged him again and again, like crows on the track of an eagle, and probably for the same reason they could not possibly intend to risk a fight — though they were fifty to one — but they wanted to drive him away from that neighborhood, and used all foul and fair means to accomplish their purpose. Some of the youngsters ventured near enough to make a grab at his tail, others got ahead of him and threw down sticks from the top branches of the next tree, and some of the old ones, who should have known better, capered around him with outrageous yells, as if they intended to challenge him to single combat. Their boldness might have cost them very dear, if it had not been for their marvellous agility; if he failed to catch them at the first spring they were sure to be a hundred yards off before he could make a second one; a cat might as well have tried to catch a squirrel.

On level ground a jaguar could catch a monkey in one jump, but on the trees a four-handed animal has the great advantage of its prehensile fingers, which enable it to use the small twigs like a rope-ladder, while a cat-like creature can climb a tree only by striking its claws into the bark of the larger branches. Four or five times he turned around and charged them with an angry growl, but they were too quick for him, and yelled in chorus as if they were mocking his awkwardness. He then tried to waylay them by hiding behind a thick tree, but they discovered his whereabouts, and the noise became worse than before. At last he hit upon a plan that proved successful. He kept moving along as fast as he could, and in a way as if he had completely forgotten his tormentors, but the round eyes of the cats and their relatives enable them to look backwards with less than half a turn of their heads, and when half a dozen of the little rascals were close at his heels, he suddenly turned like a shot and made a spring right into the midst of them. As he had foreseen, their being so close together put them in each other's way, and one of them was this time not quite fast enough, though his headlong leap just barely saved his life. But even in mid air the jaguar's paw struck him between head and neck, and

tore off a piece of his scalp like a cap. He landed on one of the lower branches, and grasping it with his hind feet, he clutched his head with both hands and looked as astonished as if the lightning had struck him from a blue sky. But feeling the sore place, his petulant screams suddenly turned into a pitiful howl, and in a moment his relatives were all around him, cuddling him, petting and nursing him, and with indignant grimaces at the tree where the jaguar stood, switching his tail and watching them with an expression of malicious glee.

The tree he was now on could be reached only from below, and seeing that their enemy had gained a vantage-ground, they retreated with their wounded comrade, and the jaguar then made straight for the place where the pig still lamented its discomforts. A bold leap from the branches of the next tree landed him within a few feet of the pit, but there he stood, advanced a step or two, and then came to a full stop.

There was something about the position of the pig that did not altogether please the jaguar. He put his forefeet on a fallen log and raised his head to scrutinize the phenomenon more closely. A pig in a tree! Here was something contrary to all his previous experience. How did it manage to get up there, or who put it there and for what purpose? The jaguar turned his head towards the lake and then looked silently in every direction. All was quiet; the pig had seen him and suddenly stopped its squealing, the monkeys were gone; no sound near and far save the low croaking of the reed-frogs. The jaguar stepped back and walked around the tree to examine the miracle from the other side. There could be no doubt of it: it was a real pig, and alive, too, for suddenly its squeals recommenced and perhaps reminded the jaguar of his screeching friends in the woods, for again he switched his tail like a cat stealing upon a mouse, and with a sudden spring, flung himself against the sapling. Nothing like trying, he probably thought to himself, and the weight of his leap actually brought down both the pig and the branch it was tied to. Down they came, jaguar and all, only a little deeper down than he had foreseen, for in the next minute the three of them, together with a bundle of dry brushwood, landed at the bottom of the pit, almost thirty feet perpendicular.

"Now quick!" shouted the trapper, "come on, if you want to see some tall leaping!"

As soon as the jaguar saw our heads at the top of the pit he treated us to a display of gymnastics that would have done credit to a kangaroo. He scraped bushes and pigs out of the way, and crouching till his chin almost touched his feet, he shot up like a rocket, clutched wildly at the slippery walls of the pit and then down again for another leap; but though his highest jumps carried him four or five feet above the top-notch of the best human jumper, the top of the pit was still ten feet higher, and the walls were as smooth as a spade could make them.

(TO BE CONTINUED.)



## WHAT TO DO ABOUT IT.

F. E. F. J. "What is the best rifle, how far will it shoot, and what will it cost? I can't find out much about the first question, as different books say differently." You will find that most advertisements and sportsmen say differently about their favorite weapons. Which is the best rifle depends on what you want it for. Hunting requires a much lighter one than target practice, for which you must have an arm of long range, and very accurate sights. The best hunting rifle is the Winchester, a light, repeating arm which will throw a dozen shots in nearly as many seconds, from three hundred to five hundred yards. A plain Winchester, with twenty-four-inch barrel, either thirty-eight or forty-four calibre, can be had for twenty dollars. Most of the shooting on target ranges is done with military rifles, or with high-priced guns of long range and very fine sights. The New York State arm adapted to seventeen-hundred-yard shooting, which costs from fifty to one hundred dollars, is the Remington, the Massachusetts, the Springfield rifle, but these are government arms and not for sale. For general use, hunting and short range target practice of from three to four hundred yards, the Remington sporting rifle is probably the most useful one you can have. The longest range military rifle is the Martini-Henry rifle, made by the Providence Tool Company, and with which the Turks did such execution in the Balkans. Under its fire the Russian soldiers fell at a distance of a mile and a half.

NANCY L. 1. "I found these lines in a grammar the other day, and would like to know who is their author and where I may find the poem:

Sir Ralph the Rover tore his hair,  
And cursed himself in his despair;  
But the waves rush in on every side,  
And the vessel sinks beneath the tide.

The lines are from Southey's poem of *The Inchcape Rock*, which you will find in *Gleanings from the Poets*, an excellent collection now out of print, which deserves reissue, or in any collection of the poet's works.

2. "Who are the Mystic Nine?" The nine Muses, who in Greek mythology presided over departments of Art and Science. Calliope, the muse of epic poetry, Clio of history, Euterpe of lyric poetry, Melpomene of tragedy, Terpsichore of choral dance and song, Erata of love poetry, Polyhymnia of sacred poems, Urania of astronomy, Thalia of comedy.

3. "Who was the first to translate the Bible out of the original language into Latin, and when was the translation made?" The origin of the translation is lost, farther than that it came from Africa, and was made in the second century.

4. "Do you consider writing stories for pleasure

a good employment for a girl of thirteen?" Most certainly not. Such work can only be a tame repetition of what she has read somewhere else. Instead of writing poetry, stories, or literary attempts of any sort, young folks in their teens ought to be observing the facts of nature, or learning the practice of nice handicrafts, which will be some satisfaction to themselves and others, not straining their callow brain over sappy composition they will only be too glad to forget when they come to years of sense and taste. A person who wrote and published stories at thirteen, and lived to be very sorry for it, says that mothers and teachers are extremely foolish to allow any such attempts, as they weaken the brain for mature work. A child who shows any such tendency should be diverted from it — set to draw, to make garden, keep pets, play games, to carve or use tools, and interested in real things, not the efforts of weak imagination.

We don't allow trees to bear little sour, useless cherries before the time, why should we let children ravage and injure their brains by premature nonsense-writing? If a child can't be kept from writing trash, the effort should never be alluded to, or commended in any way, but die out by being wholesomely ignored.

5. "Which is considered the best make of pianos?" You will find the Knabe preferred by most good musicians. It has always been my own favorite, and President Arthur, who is a man of taste, and has the best advisers in such matters, has lately placed a fine Knabe piano in the East Room of the White House.

T. K. "Can you tell me a way to keep rats out of a chicken coop next to a barn? I am afraid to use poison and they will not go into a trap." The rats will not go near your trap because it smells of those which have been caught in it. Soak it two days in water with a little potash; then let it stand without setting the spring for three or four days tilted near the rat-hole, baited, till the rats are used to it. Then set it with ham or cheese, soaking it every time a rat is caught to take the scent out. Strew poison in their runs under the barn, leaving a small tub of water near for them to drink and drown in. A poisoned rat starts for the water at once. Or gather the wild hound's-tongue or dog's-tongue that grows in waste pastures, a plant of rank odor, and near relation of the weed "beggar's-lice," and strew it bruised around the coop. It is said to keep rats away. A hunter advises you to get some skunk's scent and rub around the barn, when the rats will leave in a body. But I fear your chickens would all be gone before you could get the prescription filled. Try bruised wormwood and garlic about the coop. Vermin dislike these plants and poultry like them.

THE WISE BLACKBIRD.